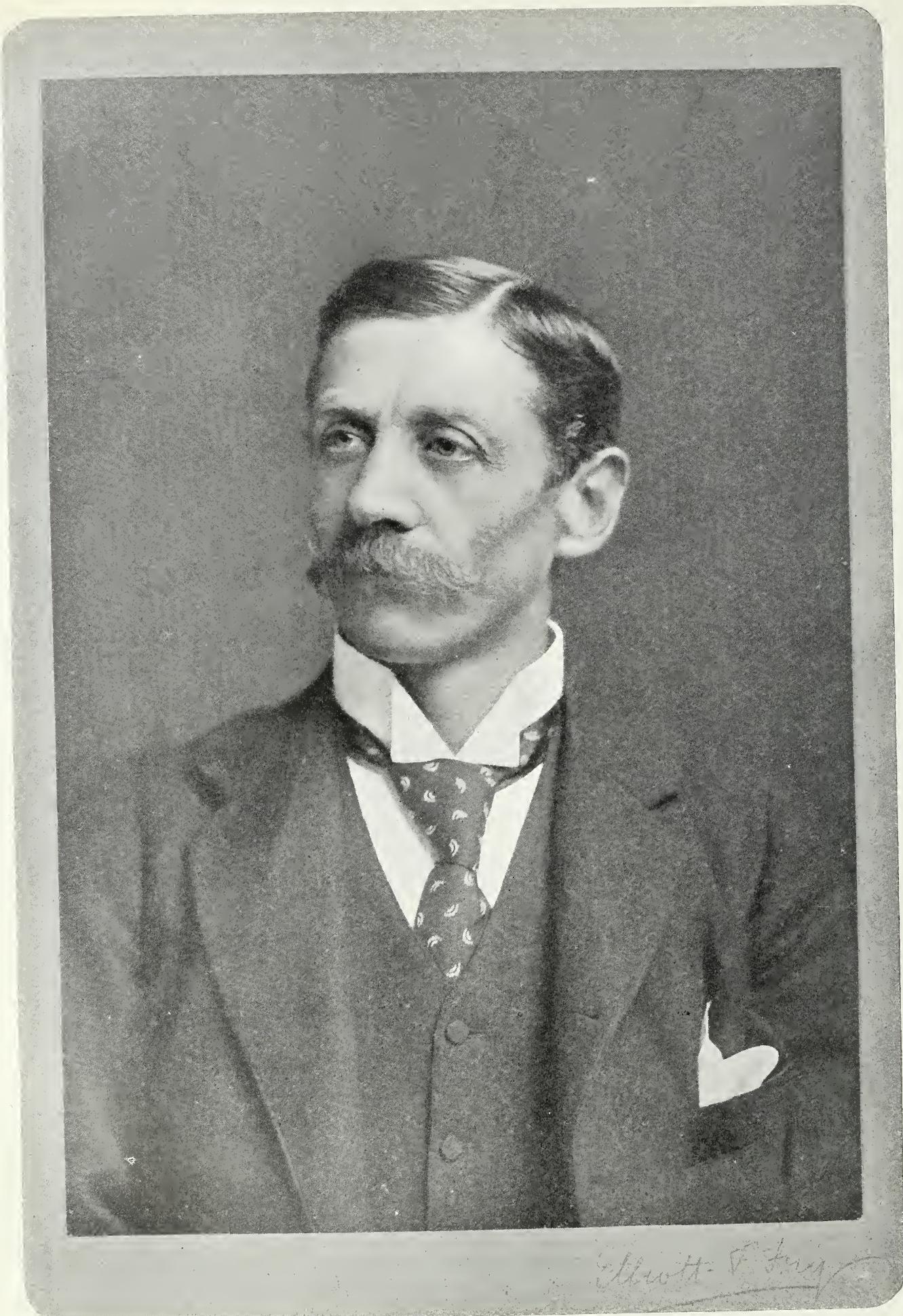


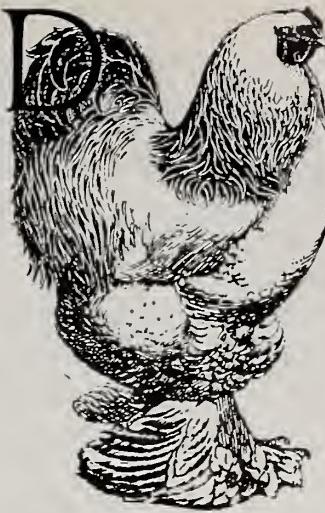
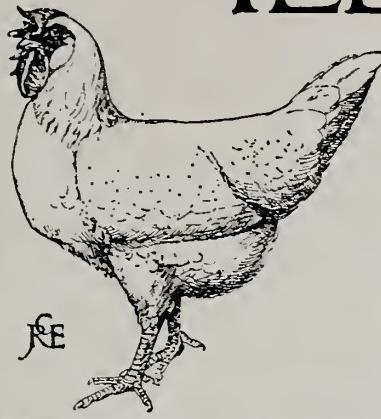
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The RT. HON. LORD PENTLAND (Vide "Who's Who in the Poultry World")
Secretary of State for Scotland.

THE ILLUSTRATED POULTRY RECORD



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DIARY OF THE MONTH.

EDITORIAL NOTICES.

Telegrams: "CHICKENDOM." Telephone: 1999 P.O.CITY.

The Editor will be glad to consider any MSS., photographs, or sketches submitted to him, but they should be accompanied by stamped addressed envelopes for return if unsuitable. In case of loss or injury he cannot hold himself responsible for MSS., photographs, or sketches, and publication in THE ILLUSTRATED POULTRY RECORD can alone be taken as evidence of acceptance. The name and address of the owner should be placed on the back of all pictures and MSS. All rights of reproduction and translation are reserved.

The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.

The Annual Subscription to THE ILLUSTRATED POULTRY RECORD at home and abroad is 8s., including postage, except to Canada, in which case it is 7s. Cheques and P.O.O.'s should be made payable to Brown, Dobson, and Co., Limited.

THE ILLUSTRATED POULTRY RECORD is published on the first of every month. Should readers experience any difficulty in securing their copies promptly they are requested to communicate immediately with the Editor. The latest date for receiving advertisements is the 20th of the month preceding date of issue.

The utmost care is exercised to exclude all advertisements of a doubtful character. If any reader has substantial grounds for complaint against an advertiser he is requested to communicate at once with the Editor.

College Poultry Farm, Theale.

The poultry industry owes much to those centres at home and abroad where practical instruction is given, more especially when combined with experimental work. The first establishment of that nature was at Gambais, in France, and the second at Theale, Berks, the last-named in association with University College, Reading, where the theoretical teaching was given. That was in 1898, since which time nearly six hundred students have been trained, many of whom have been engaged as instructors in the United Kingdom, the Colonies, and foreign countries, whilst a large number of others are owners or managers of poultry plants. At Theale has been conducted a series of experiments which have proved of great importance and value to poultry-breeders and producers in all parts of the world. The reports of these have in most cases been published in the *Journal of the Board of Agriculture*. It is well known that teaching and experimental stations cannot be conducted on a commercial basis, and the financial responsibility of the College Poultry Farm has been entirely borne by Mr. Edward Brown and his sons, in the expectation that the place would be taken over by University College, Reading, so as to ensure its continuance. The Council of the College has, however, decided to discontinue the Poultry Farm, owing to the fact that the Board of Agriculture declines to make an annual grant for its maintenance, and, therefore, its operations will cease on September 30 next. This announcement will, we are sure, be received with very deep regret, not only in this country but elsewhere, both on account of the past work done and the vast possibilities presenting themselves, more especially since the poultry industry is developing with great

rapidity, and the need for such a centre was never so great as is the case to-day. It is a serious reflection on our educational system that an institution of this kind has to be abandoned. We notice, however, that a question was asked in the House of Commons on May 17 regarding the closing of the College Poultry Farm, to which Sir Edward Strachey replied "that the Board hope that it may be possible to arrange for the continuance of the Farm, either as an integral part of the work of the College or under a separate governing body."

S.P.C.A. and Irish Chickens.

Reference having been made, at the recent annual meeting of the Society for the Prevention of Cruelty to Animals, to the method of importing live chickens from Ireland in shallow crates in which the birds cannot stand upright, we have investigated the matter in Sussex—the destination of so many of these fowls—with the following result. The Sussex poultry agents most emphatically state that any heightening of the crates would considerably increase the risks of injury to the birds, and they add that as a result of long experience of this cross-Channel traffic they have deliberately reduced the height to minimise the danger. They instanced cases of bruising and fracturing that had come under their notice in the past (outside this traffic with Ireland), in which birds consigned in quantity, in crates high enough to permit them to stand upright, had to be killed immediately upon arrival at their destination. All such questions have very naturally received the most serious attention of the agents engaged in the trade with Sussex, it being entirely inimical to their

interests that chickens should arrive in any but the best condition, because if they do they are promptly rejected by the buyers as unfit for fattening—for which purpose they are imported. The crates and "tops" used in this trade are shown in the illustration just as they arrive at the Sussex stations. They vary in height from nine inches to a foot, and the most modern pattern is that seen in the foreground. The object of the close wickerwork at the top is to prevent the birds putting their heads up, and thereby increasing the risk of injury from other crates carelessly handled in transit. There is no reason to suppose that those engaged in the traffic are other than humane men, but, apart from that question, it is their business to prevent as far as possible any injury or loss of condition in transit, and an investigation at the stations of arrival tends to the conclusion that reasonable care is taken to ensure the comfort of the birds—as far as it is attainable in the circumstances.

The Poultry Industry and the State.

A correspondent, writing to the *Times*, has brought prominently forward a question which is of considerable importance, not merely to those concerned in the poultry industry but to the nation



IRISH FOWLS ARRIVING AT A SUSSEX STATION.

[Copyright.]

at large—namely, the neglect of giving that support in educational and experimental directions which is proportionate to the total funds available. We made some reference to this subject in our April issue (page 412) so far as County Councils are concerned, but although those bodies by their parsimony and utter want of recognition of what poultry-keeping means and needs are sinners indeed, they are not alone in this respect. All are alike, central and local. The silent but none the less powerful opposition to the extension of poultry-keeping on the part of many of those who have the influence as well as the antagonism tells its own tale. In the letter referred to, it is stated that “in 1905 the appropriations for agricultural experiment stations by the United States Department of Agriculture amounted to £149,600; and in 1905-6 grants made by our Department of Agriculture were £355! In the same year (1905) the grants made by the United States Department to agricultural colleges amounted to nearly £200,000; in 1905-6 those given by our Board of Agriculture in Britain were in the aggregate £10,550.” After showing that thirty-two teaching centres and stations in Canada and the United States expended in 1907-8 for poultry equipment, salaries, and maintenance the sum of £43,504, whereas “the public money devoted throughout Great Britain to poultry teaching, apart from a moiety of administration and general expenditure, does not reach £5,000,” he adds: “if that is the national conception of the relative importance of the industry, those who, like myself, have devoted themselves to its promotion, had better have spent time and strength in other directions.” The poultry industry has grown to its present dimensions in spite of neglect rather than because of encouragement.

£200,000 for Agriculture.

The Chancellor of the Exchequer, in his annual Budget, has provided that the sum of £200,000 shall be allocated for the development of agriculture, inclusive of forestry. Whilst details are yet wanting as to how this money is to be expended, it may be assumed that the Board of Agriculture will receive better treatment than has heretofore been accorded to it. What poultry-keepers must see to is that they receive a fair share for encouragement and development of their industry, educationally and in other ways, so as to remedy the state of things already referred to. Taking the country generally, it may be assumed that of agricultural products poultry and eggs represent about 15 per cent. If that is so, £30,000 would be the rightful proportion to expend on this industry. With such a sum available, how much could be done!

The Royal Commission for Exhibitions.

We are glad to learn that the Royal Commission referred to last month has appointed a com-

mittee, under the chairmanship of Sir Thomas H. Elliott, K.C.B., for Agriculture and Horticulture, and that the poultry industry will be represented thereon by Mr. Edward Brown, F.L.S. This will, it may be assumed, take steps to secure the cordial co-operation of poultry-breeders and makers of poultry appliances for the Brussels Exhibition to be held next year and for the Turin Exhibition of 1911. For the first time we shall have equal opportunities with foreign countries, and it may be hoped that all who are interested in the development of trade in poultry, &c., will take advantage of the new departure on the part of the Board of Trade.

The N.P.O.S.

On May 13 the tenth annual meeting of the National Poultry Organisation Society—which, by the way, has now a new address: Regent House, Regent-street, London, W.—was held at 20, Arlington-street, under the presidency of the Marchioness of Salisbury. The attendance was large, the audience influential. Rank and fashion, peers and M.P.’s, with their ladies, were there in great number, and it is, indeed, a sign of the times that such should be the case. The gathering was not for pleasure, but to promote the development of our industry by farmers and small holders, and to indicate the methods by which they can secure the best returns for their produce. In that direction the society has rendered vast and important service. In fact, the present position of poultry-breeding as a practical pursuit could scarcely have been secured but for its aid. The speaking at the meeting was excellent. Lady Salisbury had a satisfactory story to tell, the secretary a good report to give. Mr. R. Yerburgh, President of the Agricultural Organisation Society, dealt with the need for effective marketing as well as production; Mrs. H. J. Tennant spoke as to poultry-keeping as a means of combating with unemployment; Sir Francis H. Channing, Bart., M.P., emphasised the need for instruction, and told of his visit to the Macdonald College in Canada; and Mr. C. E. Brooke showed that the demand for first quality home produce was greater and prices better than ever before. We note that, among others, Mr. G. M. Dobson and Mr. B. W. Horne were elected on the executive committee. The only shadow was financial. The deficit on the year was £37, and the treasurer, Colonel R. Williams, M.P., made a strong appeal for 200 new annual subscribers to meet the rapidly increasing demands on the society. Surely there are that number of readers of the ILLUSTRATED POULTRY RECORD who can afford a guinea a year to help this excellent work, and we are sure the secretary will be glad to hear from them.

Organisation in Marketing of Eggs and Poultry.

An interesting announcement has been made regarding the grant made by the Board of Agriculture to the Agricultural Organisation Society for organisation work in connection with Small Holdings and Allotments under the Act of 1907. The Board stipulated that two representatives of the N.P.O.S. should be added to the committee of the former society, and that a special poultry organiser should be appointed. The last-named position has been offered to and accepted by Mr. Edward Brown, F.L.S., who in becoming Poultry Adviser to the Agricultural Organisation Society will be able to get into touch with the large number of agricultural co-operative societies now being formed, and secure considerable increase in the number of those dealing with eggs and poultry. Mr. Brown will, however, still retain the secretaryship of the N.P.O.S., which body will devote itself to the promotion of poultry production and marketing, leaving the organisation of depots to the A.O.S.

Valuable Eggs in Transit.

Considering the number of eggs that are sent away by rail for hatching purposes and the revenue enjoyed by the carrying companies from this particular source, it is strange that greater precautions are not taken to safeguard these, in many cases, precious consignments. Improved egg-boxes and methods of packing have greatly reduced the risks, but still we fear there are some railway servants to whom the significance of a label marked "Eggs, with care," does not appeal. A case that recently came to our notice illustrates the risks vendors and purchasers are continually running. Two dozen eggs were sent from the Midlands to Ireland in a strong wooden box with felt-lined compartments, and packed in such a way that, with fair handling, a breakage would have been almost impossible. Yet on arrival two eggs were found broken at one corner, and the manner of the fracture and the bruised condition of the box pointed plainly to deliberately careless or rough handling. Whether or not compensation may be obtained in such cases, it is certain that they mean a considerable loss to poultry-keepers, and it is quite time the carrying companies made arrangements whereby packages containing eggs can be conveyed with the minimum of risk.

Daylight Saving for Poultry-Keepers.

Of the merits of the Daylight Saving Bill much has already been said and written, and, as regards its effects upon poultry-keepers and poultry-keeping, there can be no doubt that its advantages are sufficiently substantial to appeal strongly to many whose business engagements occupy their attention during the best hours of the day.

The benefits to be derived from the passing of such a measure would necessarily be most appreciated by the amateurs and those who devote only part of their time to poultry. Professional breeders are proverbially early birds, and it is by no means unusual to see poultrymen out feeding young stock shortly after sunrise, even at midsummer. For people of this class the Daylight Saving Bill would have no significance; but there are hundreds of poultry-keepers who, under present conditions, are compelled to labour at other occupations during the day, and who find the few hours of daylight in the summer evenings much too short, and who, for excellent reasons, may be unable to rise in the morning as early as other people, and these reap a substantial benefit by the transference of the hours of darkness to the sleeping and the hours of daylight to the waking periods.

Rooks!

On another page will be found an article by "Home Counties," entitled "The Poultry-Keeper's Other Foe," which deals with the mischief wrought among stock by the marauding rat. We reproduce below a picture in which yet another enemy with which the breeder has to reckon—namely, the rook—is shown caught in the trap that has been carefully prepared for him. In many districts during the breeding season the rook is a positive plague. The owner of the farm



[Copyright.]

on which this particular specimen was caught told us that he lost over two hundred chicks before a single delinquent was brought to justice. The trap is an ordinary gin, artfully concealed in a miniature plantation and baited with two eggs and a dead chick. In most cases, however, the eggs alone are a sufficiently attractive lure.

POULTRY - BREEDING IN SCOTLAND.

REPORT AND RECOMMENDATIONS OF THE DEPARTMENTAL COMMITTEE.

"It is impossible to over-estimate the importance of industrial poultry-keeping."—Vide Report.

THE Departmental Committee appointed by Lord Pentland, Secretary of State for Scotland, in July of last year, to inquire into the poultry industry in the Highland and Islands of Scotland, completed their labours on April 13, when the Report was signed.

The personnel of the committee was a strong one, being formed as follows : Mr. James Murray, M.P. (chairman), Professor R. Patrick Wright (West of Scotland Agricultural College), Mr. Harry Hope (farmer, Dunbar), Mr. S. McCall Smith (Elgin), Mr. Alex. M. Prain, J.P. (farmer, Errol), and Mr. Will Brown (College Poultry Farm, Theale, Reading), as secretary.

The committee were appointed in the first place to inquire into the poultry industry in the Highlands and Islands of Scotland, but subsequently the reference was extended, with the consent of the Treasury and the Board of Agriculture and Fisheries, to include the whole of Scotland. We understand from a perusal of the Minutes of Evidence that, although sadly neglected, the poultry crop is a very important one to those who live in the rural districts of the Highlands ; in fact, to such an extent do the crofters and cottars depend upon their eggs that they may be said to form the current coin of the realm in some areas. It is no uncommon thing for a crofter to tender two eggs during the spring in payment for a penny stamp. In other directions the same is noticed ; the merchants' carts, carrying groceries and other goods, exchange these necessities of life for eggs, and though it cannot be stated that these transactions come directly under the heading of "barter," yet to all intents and purposes the "deals" are carried out on these lines.

As we have indicated before in our columns, the committee have inquired fully into the whole question, which is shown by the fact that 672 witnesses gave evidence before the committee, 13 of whom supplemented their verbal evidence by written statements ; moreover, 18 other persons interested in the subject sent written particulars. No branch of the industry has been omitted, for we note that landowners, farmers, crofters, cottars, squatters, factors, retail and wholesale merchants, secretaries and members of co-operative societies, agricultural societies, and ornithological societies came forward to give information. Again, evidence was given by the

three agricultural colleges in Scotland—namely, at Edinburgh, Aberdeen, and Glasgow—by the Congested Districts Board, the Crofters' Commission, the Scottish Chamber of Agriculture, and the Scottish Agricultural Organisation Society, and, further, evidence was read from Mr. William Cook, of St. Paul's Cray, and Mr. Edward Brown, F.L.S., of the National Poultry Organisation Society and University College, Reading.

As we have already stated, the poultry industry is an important one in Scotland, but, taking the statistics published by the committee, we must confess that although we knew Scotland had not made the same advances in this branch of agriculture as has been attained by England and Ireland, yet we did not realise what a large sum represents the total imports of eggs and poultry into the country. It is estimated, and as far as we can see the estimate is a reliable one, that the total consumption of these commodities in 1907 amounted to no less than £3,092,017, of which £1,914,017 represents the value of foreign and Irish imports and £1,178,000 Scottish produce. Considering the area of the country and the population, these facts demonstrate that the present state of the poultry industry in Scotland is very bad indeed, and that there is a great field for improvement in the future.

Unfortunately space will not permit of our giving the Report in full, for it numbers some eighteen closely set foolscap pages, but on account of the great importance of the industry we reprint the summary of recommendations *in toto*.

It will suffice for us to say that the existing stock, appliances, and methods, taking the country throughout, are all years behind the times and that radical reforms are necessary. This statement is completely borne out by the report, although certain counties are undoubtedly ahead of others. It is interesting to note that the Orkneys export eggs to the value of over £60,000 per annum, which sum exceeds the total annual agricultural rental of the islands.

This Scotch Poultry Committee, or the Murray Committee, as it will be called in the future, is an important and definite sign that the possibilities of poultry-keeping, as a great factor towards the welfare of our rural populations, are being realised

at headquarters ; and as it is the first special Governmental Poultry Committee, everyone will await results, anticipating that rapid strides will be made in the development of the industry. But, for ourselves, we hope that any development which does take place will be a slow but sure organisation of the whole industry on the part of some recognised central Government authority or body. Only in this way do we believe that any lasting results can accrue.

That there is need for such development we should imagine no one can deny, but it is not only on account of the serious difference in the value of production and the value of the total consumption ; for there is another grave aspect of the case. We hear much about rural depopulation in England, of the constant stream of healthy manhood and womanhood flowing from Ireland to swell the populations of our Colonies, but we hear very little about the rapid decrease in the numbers of those who live in the Highlands and Islands of Scotland. Only the other day it was stated that in a district of one of the

western islands, where ten years ago there was a population of 2,500, to-day there are barely 1,700. There are many reasons, no doubt, which account for this depopulation, but it appears to us that two facts stand out before all others. One is the awful land hunger in many districts and the other is the partial failure of the fishing around the coasts. With these we have nothing to do, except to realise that they exist and that the former particularly requires very careful consideration on the part of those who have their country's interests at heart. It would be difficult, we think, to find one crofter, cottar, or squatter who does not keep poultry, and we believe that, if the recommendations of the committee are carried out, the added profit, brought by the adoption of a better class of poultry and better methods of management, together with improved marketing facilities, will compensate to a considerable extent for the loss occasioned by the semi-failure of the fishing, and further that it will act as a direct inducement to the people to stay on the land.

RECOMMENDATIONS.

123. It is felt that the work of developing the Poultry Industry in Scotland is complicated to some extent by the fact that three authorities would be responsible—namely, the Congested Districts Board, the Board of Agriculture, and the Scotch Education Department—and it is considered that it would be more successful if it could be brought under the control of one central authority.

The recommendations submitted with a view to the adoption of methods for the improvement of the present conditions resolve themselves into four sections—namely,

1. Education,
2. Production,
3. Marketing of Produce,
4. Government Assistance.

1. EDUCATION.

124. (a) The value of lectures in rural districts, given by qualified experts who are acquainted with the best methods and with local opportunities and conditions, as a means of awakening interest and stimulating endeavours for improvement, has been abundantly proved in England and Ireland, and to a more limited extent in Scotland. Where such lectures have not already been given, we recommend that in every county or other approved area a commencement should be made in this direction, and that demonstrations and visits to individual poultry-keepers should form an integral part of the work.

(b) In counties where preparatory lectures have been given, practical instruction, combined with more advanced lectures, should be arranged. For this purpose each lecturer might be provided with a van or waggon, equipped with models and poultry appliances of a suitable nature, and he should be required to remain at selected centres, serving a wider area for not less than a week, during which time he would visit

poultry-keepers, conduct practical classes, and give addresses in the evenings. It is desirable that in all cases return visits should be paid to each centre as often as possible, otherwise much of the benefit will be lost.

(c) The instructor should also be available for giving addresses and demonstrations at agricultural and other shows held within his sphere of operations.

(d) The subjects with which the instructor should deal in his classes are : Breeds and Breeding, Housing, Incubation and Rearing, Feeding, General Management, Preservation and Marketing of Eggs ; Fattening, Killing, and Plucking of Poultry ; and Diseases. Whenever and as far as possible practical instruction should be given, either at the classes held or upon individual farms.

(e) It is regarded as necessary that instructors appointed in some sections of the Highlands and Islands should be Gaelic-speaking.

(f) Under special conditions, where in any district there is a well-equipped poultry plant, we recommend that arrangements be made with the owner that this should be used for a longer or shorter period as a training centre, where the instructor can hold classes open to farmers and crofters in the neighbourhood. The importance of largely increasing the number of such places open to those who are unable to attend courses at agricultural colleges cannot be too strongly emphasised.

(g) The evidence submitted as to the value of the poultry instruction at Kilmarnock, under the West of Scotland Agricultural College, shows the importance of such a centre, and we recommend that as early as possible the staff should be increased, the equipment enlarged, and the courses extended, so as to provide, not only for the giving of advanced instruction, but also for the carrying out of experiment and research work. We also recommend that poultry departments with

similar facilities should be instituted at the other two agricultural colleges, and that at all the colleges instruction in poultry-keeping should form part of the regular courses of agricultural as well as special students. Instruction in the subject of poultry-keeping should also be included in all regular dairy courses.

(h) If Agricultural Schools or Schools of Domestic Economy be established in any part of Scotland, poultry-keeping should form an important part of the instruction given.

(i) In view of the wide prevalence of disease among poultry in many parts of the country, it is recommended that the special attention of the colleges should be invited to this subject, and that they, either through the county instructors or on the direct application of poultry-keepers, should afford assistance by making post-mortem examinations and giving advice as to the prevention and the treatment of disease.

(j) We recommend that as soon as possible a scheme of scholarships be formulated by which special students can receive training at (1) Local Practical Classes, (2) Agricultural Schools or Special Poultry Plants, (3) Fattening Stations, (4) Agricultural Colleges, and (5) that at least two travelling scholarships should be available for advanced students and instructors.

(k) In view of the urgent need for experiment and research, we recommend that a sum not less than £300 per annum should be allocated for special investigations, in accordance with the direction and under the control of the Administrative Authority.

(l) When agriculture is taught as a supplementary class in rural schools, poultry should be included as a branch of that subject.

(m) A valuable part of educational work is the dissemination of information by means of suitable bulletins and leaflets. In some counties these should be translated into and published in Gaelic.

2. PRODUCTION.

125. (a) With a view to the improvement of the class of fowl generally kept, and to increased production, it is desirable that it should be determined in each district which branch of poultry-keeping offers, by reason of soil and other conditions, and by market demands, the greatest opportunities to farmer and crofter; and that, at the same time, further observations should be made as to the fowls most suitable for the purpose in view. At the present time egg-production must necessarily be the chief object. There are, however, sections of Scotland which, on account of climate and soil, offer favourable conditions for the production of table poultry, and we recommend that this question receive consideration.

(b) When the class of fowl best suited to any given district has been determined, only two breeds—one a spring and the other a winter layer, giving preference to the latter—should be distributed for egg-production; or in table poultry districts two breeds also. An approved breed of duck or turkey should also be introduced into suitable districts.

(c) We recommend that the system hitherto adopted by the Congested Districts Board of buying settings of eggs at a considerable distance from the districts where they are to be distributed shall not be continued, but that instead breeding centres should be established, from which eggs and birds could be distributed to crofters and others without the risks of long transit by rail and other means of conveyance. We also recommend that such breeding centres or farms should not be the property of the Administrative Authority, but that they should be subsidised and supervised, subject to

acceptance by the owners of the regulations of inspection and direction adopted by that Authority.

(d) Breeding centres should be established throughout the country, and in the Highlands and Islands a greater number would be required. Such centres should be upon small farms or crofts, owned by the more intelligent, energetic, and progressive men, who would be willing to give special attention to the breeding of poultry and to follow the methods recommended by the Administrative Authority.

(e) At each breeding centre only one breed of fowl or duck should be kept, which must be one of the breeds selected for that district, and purity of race must be maintained. In this way a supply of eggs for hatching and stock birds would be available.

(f) We recommend that a subsidy of £5 be given to the owner of each breeding centre for the first twelve months, in addition to which he should receive a stock of twelve birds, and also houses and appliances to the value of £5, and afterwards the sum of £5 per annum should be paid to him, conditional upon his conforming to the regulations of the Administrative Authority, to his undertaking to maintain his stock in the best condition, to retain for breeding purposes an equal number of pullets, and to purchase a cockerel for an additional pen each succeeding year, to carefully trap-nest (in the case of laying breeds) the pullets, to keep a correct and careful account of expenditure and income, to allow inspection by visitors, and to act generally under the control of inspectors appointed by the Administrative Authority.

(g) The owner of each breeding centre should undertake to sell during the months of February, March, and April in each year to farmers and crofters chosen by the Administrative Authority selected eggs for hatching, in rotation of orders as received, and to the extent of not less than 75 per cent. of the eggs laid by his hens per month, at a price not exceeding 1s. 6d. per dozen, or exchange eggs for hatching at the rate of twelve such eggs for twelve ordinary eggs, the Administrative Authority paying him in the latter case 1s. per dozen for all eggs thus exchanged.

(h) Day-old chickens or ducklings might also be distributed from breeding centres during the months of March, April, and May instead of eggs for hatching, in which case the price should not exceed 3s. per dozen; or twenty-four ordinary eggs be exchanged for each dozen chickens or ducklings, the Administrative Authority paying the owner, in the latter case, 2s. per dozen for all chickens and ducklings thus exchanged.

(i) Owners of breeding centres should be permitted to purchase from farmers and crofters cockerels produced from eggs supplied by them, good enough for breeding purposes, with a view to exchanging with other centres and of obtaining fresh blood; or the breeding centre might give a new male bird to farmers and crofters in exchange for two of these males, or sell at a price not exceeding 4s. per bird.

(j) The poultry departments in connection with any of the agricultural colleges might undertake breeding with a view to supplying stock birds at reasonable prices.

(k) In special cases the Administrative Authority should be empowered to make grants or send on loan to selected crofters and small farmers specimen houses, trap-nests, incubators, rearers, or other approved appliances. The staff of the Administrative Authority should visit regularly producers and dealers to advise them on all questions of the production, and to make inquiry into any outbreak of disease or other condition prejudicially affecting the poultry industry.

(l) We recommend that particular attention should be paid in suitable districts, where the climate and soil are favourable, to the breeding of turkeys for the Christmas markets and also to the breeding of geese. In the case of turkeys, males might be placed at stud at cheap rates by giving a small subsidy to one farmer in each district.

(m) We suggest that prizes be offered : (1) For the best-kept flocks of birds on small farms and crofts, and (2) for birds at exhibitions. The latter to be restricted to those breeds which have been adopted for the district in which the shows are held.

* 3. MARKETING OF PRODUCE.

126. (a) The committee realise that the great success which has been attained by Danish producers has been very largely due to their improved methods of marketing. They recognise that the co-operative system as adopted in these countries has been an important factor in effecting this result. The committee have also had evidence of the advantages accruing to poultry-owners in some of the northern districts through the formation of co-operative societies, and they consider that an extension of this system would be equally advantageous elsewhere. They also recognise, however, that in many districts the enterprise of country merchants has been of the greatest service in aiding the efforts of the Congested Districts Board and in finding markets for local produce.

(b) It is fully recognised that over the greater part of Scotland egg-production should be the main object, and with a view to more rapid collection, to increase of size, to greater winter production, to efficient testing, grading, and packing, in order to compete with the better qualities of foreign produce, an entire change in the method of marketing is essential.

(c) The present system of purchasing by number irrespective of size is a direct encouragement to the production of under-sized eggs, and, in view of market requirements, we recommend that all eggs should be purchased by weight.

(d) The common mode of packing eggs is unsatisfactory in respect to size of boxes, safety of contents, and ease in handling, necessitating as it does repacking by wholesale dealers. We recommend, therefore, that a special non-returnable case of a different shape from any now in use, fitted with cardboard sections and packed with wood-wool, and similar to that used in the Canadian trade, holding 360 eggs, should be adopted for all Scotch eggs, so as to distinguish the produce, and that designs for the making of such cases be issued, and all necessary information should be disseminated amongst egg-producers and dealers. It is considered that the additional cost of such boxes would be more than compensated by reduction of breakages, loss of cases, and by avoiding the need for repacking. The weight per 120 eggs of the contents should be clearly stamped on each box.

(e) In view of the importance of the preservation of eggs from the plentiful to the scarce season, and as the best results can only be obtained when preservation is effected near the place of production, we recommend that preservation cellars should be built.

(f) The production of table poultry of a high grade cannot be looked for over the entire country, and it would be inadvisable to make any attempt in that direction except in certain suitable districts. For this branch of the industry an essential requirement is the establishment of fattening stations where birds can be received and fed off before they are killed. The present system of slaughtering lean birds is wasteful in the extreme, and accounts for the poor quality of Scottish table poultry. The cost for buildings and equipment of fattening stations

would be considerable, as well as the capital required for running them, and hence their development may be slower than that of egg-collecting centres.

(g) Considering the low prices at which chickens and ducklings are sold during the summer months, when the demand is at the lowest, it is important to note that in America, Russia, and other countries birds are fattened at that period of the year, placed at once in cold stores, and marketed during the winter and spring, when prices are at their highest. The conditions in Scotland make it essential that a cold-storage plant should form part of the equipment of a fattening station, as the birds must be chilled within a few hours after they have been killed.

(h) We recommend that where fattening stations are established the Administrative Authority should pay the salary for the first twelve months of a well-qualified and skilled operator at each station, conditionally upon the promoters agreeing (1) to the engagement of two apprentices for that period, so that they may thoroughly learn the business, and (2) to buying lean birds during the summer from districts where egg-production is the main object.

(i) The high rates and other difficulties attending the transit of poultry produce from the most remote places calls for improved facilities being provided by the railway and steamship companies. The rates charged by the postal authorities for the conveyance of small parcels of poultry produce also operates injuriously against the development of a direct trade between the consumer and the producer. Whilst these conditions continue they will be a drag on the development of the industry, and we recommend that the Administrative Authority should consider how they may be improved.

(j) The staff of the Administrative Authority should attend at the leading markets to keep producers in touch with market requirements ; carry out investigations as to the best means of transport, alike for eggs and live and dead poultry ; visit railway stations and shipping ports to supervise the handling of produce, and should report on any carelessness on the part of railway or shipping companies in dealing with the traffic, and on any causes of damage to goods by which the market value is reduced ; make suggestions to railway and shipping companies as to the proper conduct of egg traffic, and give advice to consignors as to packing.

4. GOVERNMENT ASSISTANCE.

127. (a) In order to carry to a successful issue any scheme that may be adopted for the development of the poultry industry in Scotland, regular supervision and inspection is essential. We recommend, therefore, the appointment of a thoroughly qualified expert in practical poultry-keeping as Commissioner under the Administrative Authority, with such assistants as may be thought desirable, under whose direction and control should be placed the work over the entire country.

(b) Grants in accordance with the previous recommendations should be provided from public funds.

CONCLUSION.

128 An extension of the poultry industry throughout Scotland is of essential importance to the national welfare of the country. The committee, as a result of their inquiry, are convinced that it is impossible to overestimate the importance of industrial poultry-keeping, and they regard the present as a favourable opportunity for the development of the poultry industry in Scotland, by reason of the increasing attention being given to poultry-keeping, and from the fact that it is specially suitable to the small farmers, crofters, and cottars. It is of special importance on small holdings, because it

requires little expenditure of capital and brings quick and regular returns, and the work can generally be undertaken without the employment of hired labour. It will act as an inducement to the people to remain on the land, and will thus check rural depopulation. There are no unfavourable conditions in Scotland, climatic or otherwise, more than affect other branches of agriculture, to prevent a large increase of production similar to that which has been attained in recent times in Ireland and Denmark. The enormous demand for poultry produce, and the remunerative prices obtainable for the better qualities of eggs and table poultry, with the advantages of the best markets of the world within reach, indicate that when producers are sufficiently

educated to the possibilities and make use of their opportunities the poultry industry will prove highly profitable to those who draw their livelihood from the land, while the consumer will benefit by an increased supply of the best quality of eggs and poultry. The full realisation of these objects can only be secured by uniform and continuous central action, combined with local education and organisation.

129. The committee desire to place on record their warm appreciation of the valuable services rendered to them by their secretary, Mr. Will Brown. His special knowledge and wide experience have proved of inestimable value to the committee, alike in guiding their inquiry and in preparing their report.

THE POULTRY-KEEPER'S OTHER FOE.

BY "HOME COUNTIES."

Author of "The Townsman's Farm," "Poultry-Farming: Some Facts and Some Conclusions," "The Case for the Goat," "Country Cottages," &c.

IN three long articles on Poultry-keeping and Fox-hunting I have endeavoured to state the case fairly between the poultry-keeper and the fox. There is one respect, however, in which I have failed to do justice. I have omitted to credit the fox with the fact that it likes rats.

Although the poultry-keeper may suffer many things from foxes, the loss involved is not greater, probably, than that inflicted on him by the rat.

When the fox problem is solved the poultry-keeper will still be unhappy if he is left face to face with an unsolved rat problem. What poultry-keeping would be in this country were there no foxes and no rats it is difficult to conceive. Possibly in another world the good poultry-keeper who has never sold preserved eggs for fresh nor said the thing that was not in regard to the age of his pullets or the laying records of his establishment may be permitted to keep a limited number of hens where foxes and rats alike are reformed characters.

Happily, there is every sign that the rat problem, as well as the fox problem, is going to be wrestled with and solved. There is now an Incorporated Society for the Destruction of Vermin with a Bill drafted for the consideration of Parliament, and Mr. W. R. Boelter, the author of "The Rat Problem" (Bale, Sons, and Danielsson), the text-book of the subject, carries on with vigour the public-spirited propaganda he initiated in this country some years ago.

Laws Against Rats.

There can be no doubt whatever as to the immense loss caused by rats. Cats, snakes, hawks, and mongooses would never have been for so long the sacred animals they were in

ancient Egypt if the substantial services performed by these animals in the destruction of rats and mice had not been established beyond question. The destruction wrought by rats in the Middle Ages, though some of it was in the cause of health, was immense. Hence the legends that are found in different parts of the Continent of Pied Pipers or rat-catchers. Several countries had laws punishing those who injured or killed cats. In the reign of a Welsh Prince, Howell the Good, who died in 938 A.D., there was a law fixing the price of cats according to their ages and qualities, beginning with kittens before they could see, and enacting that "if anyone stole or killed the cat that guarded the Prince's granaries, he was to forfeit a milch-ewe, its fleece and lamb, or as much wheat as, when poured on the body, suspended by the tail, the head touching the floor, would form a heap high enough to cover the tip of the tail." Nearly two centuries ago ordinances were made in several English parishes, directing the churchwardens to pay a penny or twopence for every dead rat brought them, and there are special rat laws in Barbadoes, Antigua, and Hong Kong.

A Marvel of Fecundity.

It is in Denmark, however, that the rat war has been conducted most successfully by official regulation. Zuschlag's "The Rat and Civilisation" and the agitation of Zuschlag have resulted in the passing of a Danish Rat Law which provides for a large grant for scientific operations against rats and for the subsidisation of Zuschlag's National Association and local anti-rat societies. The principle of the work done is to pay a premium on the bodies of rats. In the first twelve

months in which the new legislation was enforced premiums were paid on more than a million rats.

The rat is such a pest because of its astonishing adaptability, its remarkable cleverness, and its appalling fecundity. There is no need to adduce evidence as to the rat's adaptability and cleverness, but many persons have not yet realised the extraordinary rate at which *Mus norvegicus* reproduces itself. It has been calculated by Zuschlag that a doe may have a litter six times a year, each litter consisting of an average of eight young ones—that is, a produce from one pair of rats of 48 in the twelve months ! But this does not represent the total population for which they are responsible, because during the year a proportion of the various families of the pair have had time to have litters in their turn. Reckoning no litter as beyond eight, we have as the produce of one pair of rats in one year 880 animals !

That all these creatures survive is obviously improbable. Indeed, we know that it is not the case, or the country would be alive with rats. On the other hand, it must be assumed that not only the number of rats which is born every year, but the proportion which reaches maturity and lives more or less at the expense of mankind, is considerable.

The Loss Caused by Rats.

Every one of us has heard at one time or another of the number of rats which have been killed in a stack or an old barn. But it may be worth while to record some facts.

A correspondent of the *Field* stated not long ago that he had himself killed in an hour and a quarter with five terriers 152 rats.

Lord Gifford's tenantry once killed, in a great campaign with ferrets, traps, and poisons, on an estate of 2,000 acres, 37,000 rats.

A three days' rat hunt on a refuse heap at Folkestone yielded 1,645 rats.

An estate agent reports there having been killed in a 30-acre field of wheat 614 rats in a single afternoon, and that the same evening 156 rats were disposed of in a farm building. This agent says that the tenant on a rat-infested farm practically pays two rents, one to his landlord and one to the rats.

A Cumberland poultry-farmer says that though he is killing rats all the year round, he had in one week 100 eggs stolen.

An estate agent declares that the damage done by rats on the land under his management—30,000 acres—used to be 1s. 6d. an acre.

A manager of a well-known soap factory declares that rats cost his firm £500 a year.

A manager of a seed farm states that rats destroy and spoil £1,000 worth of stuff yearly.

A leather manufacturer thinks he gets off

luckily if rats do him no more damage than £1 a week.

On five farms in two months an estate agent reckoned that the loss of grain, food, material, game, and poultry due to rats was about £34.

A farmer, who spends £3 or £4 a year on rat destruction, lost in a single attack by rats poultry to the value of £8 10s.

A professor of economic zoology says he lost £6 worth of poultry one year and £4 the next through rats.

A Dorset poultry-farmer puts his loss in one year at £80 for stock and £50 for dead stock.

A Devonshire farmer who killed 900 rats in 1905, 1,600 the next year, and 1,300 the year after, says he should be pleased to compound with the rats for £30 a year.

"I am sure," writes a Berwickshire farmer, "that if I could save what the rats eat, spoil, and destroy it would pay the rent, and I am paying £200."

The gamekeeper on an estate of 15,000 acres is killing 5,000 rats a year.

A farmer in Oxfordshire reports that rats have on various occasions killed turkeys sitting on eggs.

£15,000,000 a Year !

Mr. Boelter, from whose book the foregoing data are drawn, computes, and his calculation is borne out by any number of authorities, that there are in the British Isles as many rats as there are men, women, and children, and that the destruction of food and material by them totals up to at least £15,000,000 a year. Already an industry with an aggregate capital of £2,000,000 is kept in flourishing condition to supply various means of rat destruction.

What can be done ? Mr. Boelter says, of course, Strengthen the hands of his Incorporated Society for the Destruction of Vermin by passing the Bill that has been prepared for Parliament and make a grant of £50,000 a year to cope with the plague that is causing a loss of £15,000,000 annually.

Viruses

In his book the claims of various viruses are carefully examined. That these viruses have worked a considerable amount of destruction goes without saying, but it is doubtful whether all that has been said on their behalf has been justified by their achievements. Undoubtedly, however, experiment with them is well worth making, but it should be mentioned that there is apparently some evidence pointing to the fact that it is possible to employ a virus in such a way as not to be entirely beyond risk to human beings. See in this connection the report of the

City of London Medical Officer of Health, not referred to in the book before me.

I have given some time of late to bacteriology, and have read the best end of a dozen books, and the chief impression left on my mind is how little we know about the life of bacteria, particularly in regard to the relation of one race of microbes with another. In these circumstances, I have not personally used any of the viruses recommended for rat destruction. In a medical paper the other month I read an article by one virus manufacturer in which he set out to prove that no ill-effects could possibly follow from the use of his preparation. I confess that I was not entirely convinced. Those who think of using the viruses must read the evidence on the subject for themselves and judge.

Versus Ratters.

I cannot but think that the question of the natural destruction of, or coping with, rats has failed to receive all the attention it might have done. There is no purpose in going to the expense of the artificial decimation of rats if natural forces are available to undertake the work. We cannot, perhaps, wisely increase the number of weasels, polecats, and female ferrets—the female ferret is the best rat hunter, because it is much smaller than the male—and there have been instances in which those who have introduced the mongoose have had cause to wish that they had not. Indeed, the harmless, necessary cat is said to be, through its descendants running wild, itself somewhat of a pest in St. Helena and some parts of South Africa. But could not the number of barn owls, hawks, and kestrels, or, at any rate, the number of barn owls be largely increased with perfect safety to the interests of poultry-keepers?

The barn owl or "flying cat," as it has been justly called, is a wonderful ratter, and as it does its work at night is a particularly serviceable foe to *Mus norvegicus*. Undoubtedly the lower class of gamekeeper and some farmers' sons who ought to know better, not to speak of some alleged sportsmen and so-called naturalists, destroy a large number of owls. If the Incorporated Society for the Destruction of Vermin could produce a well-written, illustrated leaflet on the barn owl and get it into the hands of the youngsters at all the schools in country districts, from the elementary schools to the public schools, it would do good work.

A New Side Line for Poultry-Keepers.

But has all been done that can be done to get the best that is possible in rat destruction out of those domesticated ratters, the terrier and the

cat? Undoubtedly there is a great difference not only among terriers but among cats in their ratting powers. Probably their limited ability as rat-catchers is due to pampering—in other words, over-domestication.

We have been told again and again that the way to make poultry-keeping profitable is to have side lines. Will no poultry-keeper, in these days of scientific breeding, go in for the production of terriers and cats of high ratting ability? If good ratting strains of these animals can be produced there would be, I am sure, a ready sale for them were they advertised in this magazine. There is an English terrier by the name of "Jack" which has been imported into Denmark, and its prowess is such that the rats of the kingdom are probably as much afraid of him as they are of Zuschlag himself. Mr. Boelter gives a portrait of "Jack" with a hecatomb of dead rats round him.

I feel certain that the editor of the ILLUSTRATED POULTRY RECORD would only be too glad to open his columns to a discussion of the rat question. Many of its readers must have valuable personal experience, and could give the Incorporated Society as well as fellow-poultry-keepers tips.

In Mr. Boelter's book all methods of rat destruction seem to be described except the plan of using a tub covered with brown paper, glued down to its edges. Food is placed on the artificial top of the tub for several nights, and then one night a T-slit is made in the middle of it and the visiting rats fall into the tub. The noise they make attracts other rats until a considerable number accumulate. Mr. Boelter mentions in his bibliography Mr. Barkley's "Studies in the Art of Rat Catching," which purports to have been written for the use of schools, but ungratefully calls the author Barclay. The humour of the book appeals mightily to boys, and the work is certainly practical.

War against rats must undoubtedly come, but I hope it will be conducted according to the rules of civilised warfare. There are some methods of assault on *Mus norvegicus* which are not sporting.

Mr. Boelter laughs to scorn the idea of the rat being a scavenger, but I should be very sorry to say that he is without his uses in the scheme of things, if only he will keep his numbers within reasonable limits. And he is certainly a clean, self-respecting, and enormously able animal. It is true that on occasion he will eat his kin, but except when necessity compels he is a model of the domestic virtues; and should it not be remembered to his credit that, when rat eats rat, Mr. Rat and Master Rat chivalrously allow themselves to be devoured by Mrs. Rat and Miss Rat?

THE SMALL HOLDER'S POULTRY EQUIPMENT



BY EDWARD BROWN, F.L.S.

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GENERALLY acknowledged is the fact that with the increase of small holdings there will assuredly be found a growth of poultry-keeping. That goes almost without saying. Influences there may be exerted to check the development of the industry, but they will be in vain. The tide of progression in this direction is too strong to be dammed. If such be attempted, ultimately the waters will overflow, engulfing more than is necessary or desirable. Hence the present stage is specially suitable for consideration of what is required to equip the small holder for his work. Fortunately there are many examples available, such as those noted by "Home Counties" in a previous issue. It is not theory, therefore, but actual experience.

One of the attractions of poultry-keeping, more especially to those of limited means, is the rapidity of return, and that under proper management there is a stream of shillings coming in all the year round, keeping the domestic mill working. That concrete fact appeals very strongly. Other products selling at longer intervals may provide for rent and rates and

clothes, but the daily outgoings often press more than the bigger things, especially on those who have been accustomed to weekly wages. Perhaps we have here an explanation why there is a temptation to proceed too rapidly, to attempt too much, often with heavy loss. The greater success will be achieved by taking one step at a time, by walking warily, by not seeking to realise everything at once, but by securing as far as possible each position before the next is attacked. Yet it is necessary to look ahead, to anticipate needs and developments, even to create as well as satisfy opportunities. Quest precedes conquest, but the quest must be judicious as well as persistent.

There is nothing easier than owning a few hens, allowing them to run around the homestead. Generally that is keeping poultry with a vengeance, for, under those conditions, they do not keep the owner—he keeps them. But with proper management every hen ought to leave a profit, whether there be one or a hundred. Such should be the object of the small holder, who has not the basal and establishment expenses of

a poultry farm, as these are distributed over the entire field of operations. By so doing he can hope to live out of his farm and realise a surplus. Such is farm poultry-keeping, not poultry-farming. The latter would, as a rule, be undesirable for the small holder ; the former will contribute greatly to his success. To attain so happy a result he must not attempt too much, and, considering that general cultivation will be his chief pursuit, three or four hens for each acre of his occupation will be as many as he should keep. Thus on a 20-acre farm a flock of 60 fowls, and the raising of 200 chickens, will be quite within his possibilities, and will neither entail undue labour nor interfere with the usual cropping. Larger and smaller holdings would be *pro rata*. The first season it would only be desirable to buy six or eight hens and a cock as the basis of the stock, breeding from these, in addition to which a dozen or two day-old chicks of the same breed can be obtained, and thus give the interchange of blood desirable. From such a foundation the budding poultry-keeper should be able to build up his flocks of breeders and layers.

Under these circumstances he will at first need only one poultry-house and a few coops or a brooder. In fact, as a temporary expedient he may make shift with a very rough-and-ready erection for the breeding - pen, so long as it is well ventilated and the birds have plenty of space to wander about. In these days poultry-houses can be purchased at remarkably low prices, so much so as to make us wonder how it is done. It will not tax his capital unduly, therefore, to buy his first house, as he is certain to be very busy in other ways, and he may later on construct what others will be required as opportunity permits. Often materials can be obtained cheaply, which answer excellently for this purpose. Packing-cases of various kinds will do admirably provided the wood is substantial and durable. Even if new timber has to be purchased, considerable saving can be made in cost by the method suggested.

The point must here be emphasised that every house should be portable, which does not necessarily mean that it should be on wheels, but that its size and construction should be such that it can be easily removed to another location. Large fixed houses are a mistake under the conditions here referred to, not only

from the fact that to move them means heavy labour and expense, but also that the difficulty of doing so frequently results in keeping them too long on one place, and consequently in the tainting of the ground. Few poultry-keepers who have put down fixed houses have not ultimately found that changes might be made with advantage, and have experienced loss arising from want of plasticity in their equipment. It is not suggested that no houses are to be used which need not be removed for a long period, perhaps several years ; if they are built in sections or are not too big to transfer on rollers, the owner is master of the position, and can transpose them if he thinks it desirable to do so. The ordinary portable houses on wheels or runners are to be recommended for use on the open fields, as they can be moved from place to place in a few minutes, and offer the great advantage of preventing any damage to grass and of causing a wider distribution of the manure, to the benefit of the land and crops. In this way both convenience to the owner and the health of the inmates are provided for, and the work of the poultry-keeper is not hindered by rigidity. Upon a 20-acre holding the aim should be to have, when the poultry section is in full swing,



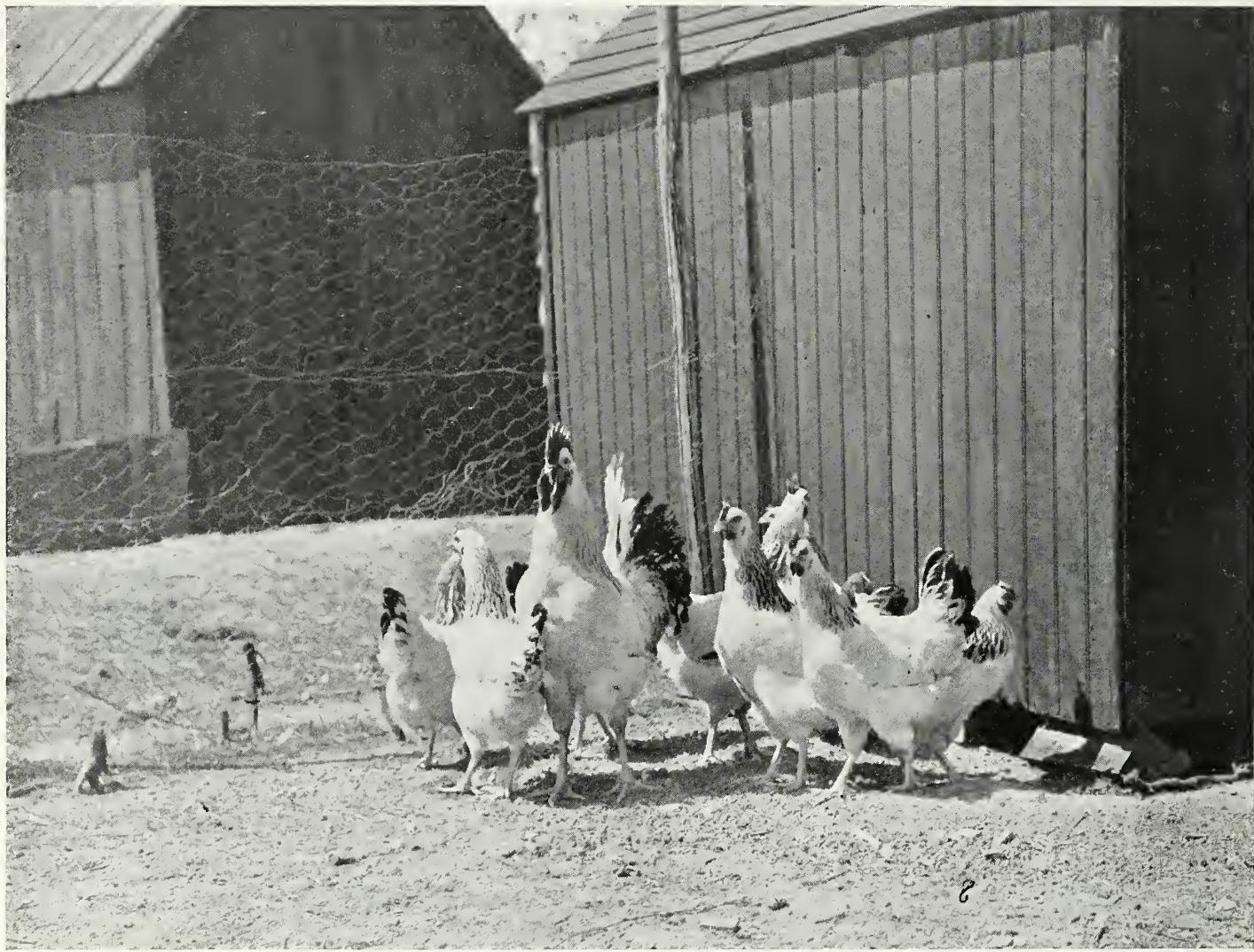
ON A SMALL HOLDING AT HINDHEAD.

[Copyright.]

three portable houses for the open fields, and two of those intended for use near the homestead, but capable of removal if the need arises. The latter may be used for many purposes, and are to be

preferred 8ft. or 10ft. square, with open fronts, built on the plan of scratching-sheds, of which details were given by Mr. Cumming in the December issue of the ILLUSTRATED POULTRY RECORD. The field houses should be 6ft. square, or 6ft. by 5ft. I note that many makers offer houses with low roofs. That is a great mistake. In no case should they be less than 5ft. high, and 6ft. is better. Even in portable houses it is desirable that the upper half or one side shall be of wire netting with a flap or sliding shutter, though the less that is used the better.

of selection of the pullets. Ten or twelve broods of chickens should, therefore, cover the work, and if hens can be induced to become broody early enough in the season to ensure early hatching, they can be depended upon alone, though even in that case, when an incubator can be afforded it is eminently desirable, as by such apparatus risks of delayed broodiness are provided for. Where it is intended to raise a much larger number of chickens for spring and summer marketing, or where non-sitting breeds are employed, then an incubator is a necessary part



A PEN OF LIGHT SUSSEX ON MR. FREEMAN'S 10-ACRE HOLDING AT GLYNDE.

[Copyright.]

Then there comes the question of hatching and rearing. Where the number of birds to be hatched is merely for replacement of the stock the task is by no means difficult, but where it is intended to produce chickens for market the scope must be enlarged accordingly. Under the former conditions on a 20-acre farm where, say, 60 hens are kept, not more than 30 to 35 pullets will be needed to replace half the hens killed off by reason of age. Hence 100 chickens should be ample, and will allow for cockerels and a fair measure

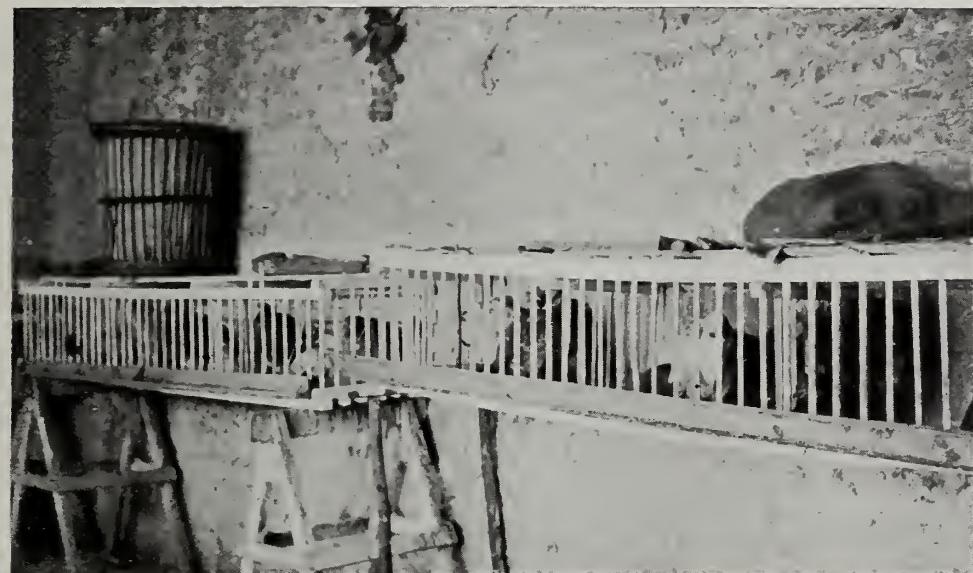
of the equipment. Ordinarily the small holder will walk warily and wait before making such purchase. He will need a place for the hens to sit in, boxes to accommodate them, and coops at a later stage. These need not cost much. One of the fixed, open-fronted houses already named will do excellently for a sitting-house, and later on as a chicken-house when the birds are past the cooping stage. Excellent sitting-boxes can be formed at small cost from the soap or candle boxes purchasable from grocers, and Tate's sugar

boxes, generally sold at 4d. each, can be transformed into first-rate coops by a couple of hours' work. But they should both be bought and altered in advance, as the trouble is that supply is often much below demand, the remedy for which is for people to consume more sugar! Where table poultry is to be a leading object, equipment must necessarily be greater by reason of the larger number of birds to be raised. Many of the South Country breeders depend entirely upon hens for hatching, and with a fair measure of success, but the tendency has undoubtedly been of late years for the scarcity of early birds to become more pronounced, and these are certainly not equal to the demand in the spring season. Under these conditions the use of artificial methods is desirable as soon as possible. Otherwise, on this score, the cost of equipment can be kept very low indeed. But it may be too low.

abundant exercise if they are littered out and the corn scattered in the litter, thus compelling them to exercise. By such means as many as 200 birds can be kept to the acre on good free-growing land, but only for one year, when houses and birds must be removed bodily to other fields, and those vacated cultivated in the ordinary way, thus utilising and turning into money the manure absorbed by the soil. I should, however, advise 100 per acre rather than the greater number. Even then, if four acres are given up to the laying stock and two acres to the growing chickens, it will be seen that a 20-acre man can keep 400 layers, raise 500 chickens, and have 14 acres for ordinary cultivation without danger of overstocking and tainting his holding. Out of that he ought to be able to make a satisfactory living profit, provided that he secures good markets for his produce. In this case he will need about 20 scratching-sheds and a few portable houses, so that the equipment will entail a capital expenditure of at least £100, probably more. But, wisely carried out, this would be spread over two or three years.

The point remaining for consideration is that of breed or breeds. Except in the table poultry districts, where crosses are often to be preferred, I have no hesitation in recommending pure stock, no matter what kind is kept. These cost a little more at first, but consume no more food, and often yield higher returns. Moreover, they are much more certain in results. The class of fowls kept will depend upon the nature of the soil and the produce in demand.

With the exception of the fowls kept, and a few shillings for small appliances such as buckets, troughs, barrels, &c., it will be evident that the capital expenditure need not exceed 6s. to 7s. 6d. per head of breeding or laying stock, and is almost entirely for provision of the necessary houses. Under such conditions expenditure upon wire netting is useless, and a positive waste. The less of that the small holder uses the better. As his operations extend, and especially if he intends to make poultry-keeping a leading feature of his enterprise, he will be well advised if he develops on the colony system, in which case additions to equipment should be in the form of scratching-sheds, as they have to be removed not more than once a year. These buildings cost more than do portable houses, but they last longer, and the larger area enables him to give the birds



MR. FREEMAN FATTENS HIS OWN CHICKENS.

[Copyright.]

Much may be done by selection and early hatching to obtain winter eggs from the light-bodied non-sitters, but under normal conditions the general purpose races are to be preferred, not only by reason of the fact that they are naturally better winter layers, but also because the surplus chickens will realise higher prices when marketed. They cost a little more to feed, but the enhanced returns more than compensate. Perhaps the ideal way would be to have the flock equally divided between the two classes, in which case two lots of breeders will be required as a start. If not, one lot will suffice. This is the stage when cheapness is false economy. Good birds cost more, but they are worth more, and it is wiser to buy fewer to begin with, but good ones; that is, for practical purposes.

WHO'S WHO IN THE POULTRY WORLD.

THE SCOTTISH DEPARTMENTAL COMMITTEE.

THE RIGHT HON. LORD PENTLAND.

(See Frontispiece.)

WHETHER the Secretary of State for Scotland takes any personal interest in poultry-breeding as such we do not know, but that his action in appointing the Departmental Committee on Poultry-Breeding in Scotland, whose report is dealt with in the present issue, will do much to promote the poultry industry cannot be doubted. By the step named, more especially if the committee's recommendations are followed by active endeavours to put these into practice, Lord Pentland has rendered a service which cannot be measured as yet, deserving the acknowledgments of all who are interested in this industry and in the national welfare. The full justification will be seen when the scheme foreshadowed in the report becomes an accomplished fact.

Better known as Captain John Sinclair, for it was only in January last that the Barony was conferred and he passed to the House of Lords, Lord Pentland has occupied many positions. For a time he was captain in the 5th Lancers. When the Earl of Aberdeen was appointed Governor-General of Canada in 1893 he was accompanied by Captain Sinclair as Secretary, who resigned that position in 1897 when he was elected M.P. for Forfarshire. During that period he saved Lady Aberdeen from death by drowning in the Ottawa river. From 1897 to the present year he continued to represent in the House of Commons the constituency named, and on the formation of the present Government in 1906 was made Secretary of State for Scotland. Lady Pentland was Lady Majorie Gordon, only daughter of the Earl and Countess of Aberdeen.

MR. JAMES MURRAY, M.P.

AS we included the Chairman of the Scottish Committee in our "Who's Who" last October, it is unnecessary to repeat what was then recorded with regard to Mr. Murray.

MR. A. M. PRAIN, J.P.

OF the six members of the committee only two could in any sense be regarded as directly connected with the poultry industry. One of these was Mr. A. M. Prain, of Errol, who has been for years known as a successful breeder, exhibitor, and judge of poultry; not that he restricted his attention to the "Fancy" side of things, for, as a practical farmer, he has ever kept in mind the fact that for the development of poultry-keeping on national lines egg- and meat-production are all-important. Hence he has given a great amount of attention to farm poultry-keeping, and by his lectures in

many parts of the country under various county councils, by his example and writings, and by his work in connection with the formation of co-operative societies under the Scottish Agricultural Organisation Society he has contributed very largely indeed to the awakening of public interest in this subject and to the adoption of such steps for improvement as have been taken. As a member of the Scottish Commissions to Denmark in 1904, to Ireland in 1906, and to Canada in 1908, and as delegate to the Poultry Conferences in 1899 and 1907, he has taken every opportunity to extend his knowledge and experience in this subject.

Born in the Carse of Gowrie, the son of a farmer, Mr. Prain has grown up a farmer, but always with a penchant for poultry, which on his own farm for twenty-four years he developed with great success. That began in 1882, as a practical branch of his operations. He has kept nearly every useful breed of fowl, the main idea being to find out by experience which were the most profitable breeds and to produce the best specimens of them. As an exhibitor, Mr. Prain has been highly successful, having won upwards of 6,000 prizes. The absence of interest in poultry questions yet found in Scotland is not due to lack of efforts on Mr. Prain's part, for in the course of his wanderings he has visited nearly every part of the country, lecturing and organising, and has acquired a knowledge of the greatest value. But more interest is being now taken than ever before, and in that Mr. Prain can fairly be credited with an important share. It is, however, only the beginning of things. His appointment to a seat on the Departmental Committee was a well-deserved recognition of his efforts and work.

Mr. Prain is a Justice of the Peace for Perthshire, a member of the County Council, and of several important committees. He is a keen sportsman and a skilled musician.

MR. S. MCCALL SMITH, J.P.

TO convert agriculturists to the possibilities of industrial poultry-keeping representative farmers were essential members of the Scottish Departmental Committee. If we read the report aright, that conversion is in a fair way of accomplishment, as there is no hesitation in the views expressed. To this end a better man than Mr. McCall Smith could not well be found, as he is representative in the truest sense of the term, commanding the confidence of farmers throughout Scotland, both for his practical acquaintance with agriculture and his knowledge of Scottish character and conditions. He has been a farmer all his life, equally on arable and sheep lands, and as a breeder of sheep has occupied a leading position in the country. Nor is his range limited, for he has farmed in four counties of Scotland.



2. Mr. A. M. PRAIN.

4. Mr. WILL BROWN (Secretary).

1. Mr. JAMES MURRAY, M.P. (Chairman).

6. Mr. HARRY HOPE.

3. Mr. S. McCALL SMITH.

5. Principal WRIGHT.

Public affairs have received much attention from him, his interest in which has been manifested in various directions. He has been a member of the local School Board for thirty-four years and a member of the Inverness County Council for ten years, whilst both in Elginshire and Inverness-shire he has served as parish councillor. He is, in addition, Justice of the Peace for both the counties named. His keen and practical judgment were invaluable on the committee.

PRINCIPAL R. PATRICK WRIGHT, F.R.A.S., F.R.S.E.

IN a question where education must necessarily receive attention, someone engaged in that work was essential to round off the Committee. From the fact that the West of Scotland Agricultural College is the only one which has attempted practical teaching in poultry-keeping, on its farm at Kilmarnock, Professor Wright was selected almost automatically. He was educated at Ayr Academy, and at the Universities of Edinburgh, London, and Heidelberg, became Professor of Agriculture at Glasgow in 1886, and Principal of the West of Scotland Agricultural College in 1900, and he is Examiner *ex officio* in Agriculture for Glasgow University. He is J.P. for Ayrshire, and holds many other positions. His work, however, has been largely seen in experiments, many of which have proved of the greatest value. He is author of many pamphlets and reports dealing with educational and agricultural subjects, and revised "Blackie's Agriculture." His latest task, and the greatest in this connection, is "The Modern Encyclopaedia of Agriculture," a monumental work now being issued in twelve volumes, of which he is the editor. Last year he formed one of the Scottish Commission to Canada. So far as Professor Wright is permitted, we anticipate that he will help largely in carrying out the recommendations of the Departmental Committee in which he has taken so deep an interest.

MR. HARRY HOPE.

THE agricultural interest was well represented on the Departmental Committee. Mr. Harry Hope brought to its deliberations knowledge of practical and successful farming combined with a wide experience and broad ideas. He is a tenant farmer, the youngest son of Mr. James Hope, of Eastbarns, Dunbar, known as one of the veterans of Scottish agriculture. Born in 1865, he was educated at the Collegiate School, Edinburgh, and at Edinburgh University. He served as an officer in the Haddingtonshire Artillery Militia for thirteen years, retiring with the rank of Captain in 1897. Mr. Hope farms in the "red soil" district around Dunbar, famous for its potatoes, and pays over £4 per acre for his land.

He was President of the Scottish Chamber of Agriculture for 1907-8. That body has about 70 agricultural societies affiliated to it and voices the opinion of farmers throughout Scotland. Last year

he was a member of the Scottish Agricultural Commission which visited Canada, and has seen a good deal of farming in Australia and New Zealand. He has served on several public bodies, and once aspired to a seat in Parliament, unsuccessfully contesting Elgin and Nairn in the Unionist interest at the last General Election. He has now been adopted as the prospective Unionist candidate for Buteshire. Mr. Hope, both as a practical farmer and from his family associations, is progressive in ideas, and in regard to the land question believes that security of tenure is of vital importance. His presence on the committee is calculated to ensure confidence in many in its recommendations.

MR. WILL BROWN.

IN the concluding paragraph of the Scottish Report a tribute is paid to the work of the secretary, Mr. Will Brown, from which it will be seen that, apart from the many duties devolving upon the occupant of that position, to him fell the onerous and responsible task of making a draft which should form the skeleton of the committee's final conclusions and recommendations. Few have any conception of what that means, or of the amount of forethought required, of labour involved, and of knowledge of the subject dealt with needed to bring such a task to a successful issue.

Considering the fact that Mr. Will Brown has charge of our Education and Experiments Section and his relationship to the Editor of the ILLUSTRATED POULTRY RECORD, we may be forgiven for doing little more than state somewhat baldly his right to a place in our Gallery.

Born in 1879, son of Mr. Edward Brown, F.L.S., poultry questions with him are almost instinctive. Since then he has done much and seen much. Educated at University College, London, he afterwards became a student at University College, Reading, and finally graduated at the Leipzig University. In 1900 he came into association with the College Poultry Farm, Theale, taking the position of Practical Instructor in Agriculture in 1904 and of Assistant Lecturer in Poultry-Keeping at Reading in 1906. Prior to that time he lectured four seasons under the Aberdeenshire County Council, and has acted in the same capacity elsewhere. For nearly three years he has been lecturer on Poultry at the Royal College of Agriculture, Cirencester.

Mr. W. Brown's tastes are specially scientific. Many of the experiments carried out at the College Poultry Farm, Theale, have been under his direct charge. He has made a considerable amount of research into the problems of incubation, and read a paper at the second National Poultry Conference in 1907 on "Observations on Moisture and Ventilation in Incubators," which awakened great interest, but he has not had time to complete his experiments in this all-important direction. Feeding questions have also commanded his attention. That in these and other directions there is plenty of scope for inquiry is unquestionable, and it may be hoped that the opportunity for further observations will yet be afforded.



Prize-Winners.

Of late years it has been the custom of some individuals who are "in the poultry Fancy for what they can get out of it" to advertise their wares in such a manner that it makes one almost wonder what really does constitute a prize. This is, of course, the age of advertisement, and I am well aware that there is nothing like a properly worded advertisement as a means of doing good business. But the method adopted in the particular cases which I have in my mind, although no doubt strictly correct from a legal point of view, is one, nevertheless, which is very apt to mislead the uninitiated. Thus it is becoming quite common for owners of exhibition stock in their advertisements and price lists to set forth that their birds are winners of so many prizes "and honours."

Prizes and Prizes.

It matters not if one finds on investigation, as is too frequently the case, that the prizes have been gained either in selling classes or in those which were so limited that the birds have not had to compete with very high quality specimens. Neither does it greatly concern me if I discover that the advertiser has been the sole exhibitor of his special fancy at the events at which his birds have gained the prizes, or if the fowls to which the awards were given were actually not worth many more shillings than those which formed the prize-money they won. Such birds are undoubtedly prize-winners, although some fanciers may feel inclined to query the point.

"And Honours."

But when it comes to honours, that is where the rub comes in. They often consist of such small ones as commended cards. And since some judges unfortunately award those minor cards indiscriminately, possibly under the impression that to do so acts as a sop for the owners of the birds which cannot win, the honours are practically barren ones. It is too often the case that "cards"

are awarded to almost every bird in the class, some times, it is said, to encourage the novice, at others to please exhibitors, and, at rare intervals, to soothe the feelings of some misguided individual who has subscribed generously to the funds.

The Value of Cards.

In my opinion, this indiscriminate awarding of honours is nothing short of an evil. If they are given as a sop they generally fail to have the desired effect ; nothing short of "first and special" will please some exhibitors, and the cards merely irritate them ! If to encourage the novice, by all means let us award the cards, if for no other reason than that he is the backbone of the Fancy. But is it an encouragement for him to find that his commended bird is only one of perhaps a dozen so decorated ? I think not. It often, too, gives the beginner a false impression of the value of his specimen. I know that many novices would rather their birds did not get a mention than that they secured an honour which is practically worthless.

Should Honours be Limited.

But if the honour cards were limited they would be of value, and the fact that an exhibitor had gained so many prizes and honours would give one some idea of the value of his stock. It is the custom at Scottish shows to allot only one card of each kind, no matter how large the class ; and thus it is rare indeed to find at events beyond the Border more than one "reserve," one "very highly commended," one "highly commended," and one "commended." I have for long contended that such a plan is the best in the long run, and that if a judge can pick out the three best birds for the cash prizes, it should not be a difficult matter for him to select the seven best and award the cards accordingly.

All Prizes.

It is well known, I think, that for years I have followed such a system when I have been acting as judge ; and

perhaps it is due to the Scottish blood in my veins! Be that as it may, I am not ploughing^a a lone furrow. During the past three or four show seasons other and older judges have also limited their favours. Such a method may not please all—nay, it does not; but, since it is impossible to do so, that part of it really does not matter. If honour cards were limited, on what we may term the Scottish plan, they would be of value; in fact, such awards could really be entirely abolished. What difficulty would there be in allotting seven prizes to each class? Those after the first three, of course, could be cards and not cash.

A Suggested Reform.

I throw the hint out for what it is worth. We are practically at the commencement of another show season, and some show executive might like to run the suggestion on trial. Reforms move slowly in the Fancy, but there is no doubt that reforms are in the air. We have been going along on the old lines long enough, and one or two radical changes would possibly put new life into the Fancy. I do not suggest for a moment that it is anything like dead, but change is good for everyone. If honour cards were abolished, and every award a numerical prize, it would, I feel sure, be an inducement for more poultry-keepers to have a try at prize-winning.

Will it Pay?

Things are cut so fine nowadays in the exhibition line, and shows are so numerous throughout the country, that the financial aspect has to be studied. Hence, ere giving a new idea a trial, it is perhaps natural for the show executive to ask, "Will it pay?" In other words, would such a plan induce a big entry? I have said that the one-card system obtains at practically the whole of the Scottish shows, and there is nothing to lead one to believe that such a plan has been in any way detrimental to the poultry Fancy in Scotland. I might add, and it will, perhaps, the better bear me out, that the custom prevails at most shows in Cumberland and the North-West at which anything like an extensive classification is given for Old English Game fowls. Judges of this breed, both those of the old and the new schools, are very sparing with their cards; yet it is the rule for entries of Old English Game at those events to be particularly strong. And if my own personal experience is of any value I will conclude by saying that I have never found the one-card system at all interfere with the entries. That being so is my reason for suggesting that numerical prizes and completely abolishing cards would result in better entries all round. Who will be the first to give the plan a trial?

SHOULD JUDGING BE OPEN?

To the Editor of the ILLUSTRATED POULTRY RECORD.

SIR,—In the April number of the ILLUSTRATED POULTRY RECORD I read with interest an article on the

above subject, and am just penning you a line or two to express my approval of the matter contained in it. I have never seen the reason, if any, why judges of poultry, pigeons, and rabbits should not have a full list or catalogue of names of exhibitors before commencing their duties if they desire it, just the same as it is with the judging of cattle, horses, &c., at the agricultural shows. If a man is dishonest and intends to do wrong, he can do it in more ways than one, catalogue or no catalogue.

So far as my experience goes for the past ten or twelve years at poultry shows, it has been an exceptional thing if I have not heard complaints at the awards of the judge or judges employed, which, if listened to, would probably stamp all people acting in that capacity as wrong ones, myself included amongst the number. I have been grumbled at to my face *re* judging, which is, of course, all right, as this can be met and cleared when you are there and it is put to you. Also I have been spoken about behind my back, both on showing and judging. This, of course, is a different matter, and is treated with the contempt it deserves.

If open judging would do away with (or nearly so) these and other evils, then it is full time we had it, and no doubt it would be welcomed by all. In conclusion, I might say that the main cause of dissatisfaction, in my opinion, will remain as long as people show birds worth probably anywhere from 5s. to 15s. against those which are worth from £5 to £50 or more, as is often the case, and then expect to win, and grumble if they do not.—Yours, &c.,

Swanley, Kent.

ART. C. GILBERT.

To the Editor of the ILLUSTRATED POULTRY RECORD.

SIR,—I was very much interested in Mr. W. W. Broomhead's article in your last issue, which raises a question of great importance to the Fancy, but I fail to see what substantial benefits are to be gained by adopting the principle of open judging. It should be an axiom that before throwing over one system we should be sure of the advantages to be gained by taking up another, and to my mind the arguments put forward in favour of open judging are unconvincing.

If a judge undertakes to adjudicate upon the merits of the exhibits and ignores all considerations of ownership, why should he need a catalogue? In what way could a complete key to the ownership of the birds assist him in deciding between their relative merits? It would, in my opinion, be more likely to influence his opinion in an undesirable manner, since the presence of the name of a famous exhibitor would, in most cases, prompt a judge to pay more attention to that man's exhibit than he otherwise might have done. A capable judge would do his work far better without a catalogue, although the suggested method might, and probably would, provide inspiration to those who lack experience and knowledge, for there can be no doubt that the names of leading exhibitors would be used more or less

as a guide in such cases. But I think Mr. Broomhead would be the last to wish to see the principle of open judging put to such a use. Yet how would he prevent it?

It is difficult to understand how open judging could put a stop to the dissatisfaction that exists among exhibitors when they fail to win a prize. Until the national character undergoes a complete change, Englishmen will never fail to grumble when they find an opportunity, and, far from disarming suspicion, I am convinced that catalogue judging would give rise to many more complaints and innuendos than we hear at present. If an exhibitor cares to grumble, by all means let him grumble. With some it is a habit, and they would never feel satisfied unless they could relieve their feelings when they do not win. In most cases they mean nothing, and, unless a judge is very thin-skinned, he can take it all in good part. At any rate, open judging would be more likely to aggravate than break such a habit.

As we do not judge poultry in the ring, I am afraid there is no analogy between the judging of poultry and dogs or other animals. Moreover, the canine Fancy is no better for having adopted what is practically open judging. The trouble is that they cannot get away from it. But that we in the poultry Fancy decline that principle does not imply that our judges are not to be trusted. We stick to our closed judging principle because it is the best available, because both judges and exhibitors prefer it, because we regard our judges as sufficiently capable of discriminating without catalogue aid, and because we regard the identity of the owner as having no bearing whatever upon the actual determination of the awards.

Personally, I should be very sorry to be compelled to judge by catalogue. I should feel that my independence had been taken away, and I am firmly convinced that such a system would stifle individuality on the part of judges. There is little pleasure in judging, even when one is adjudicating upon birds one knows well through constantly meeting them. With an open catalogue before one it would be a perfect misery.—Yours, &c.,

W. M. ELKINGTON,

Ladye's Hill, Kenilworth.

To the Editor of the ILLUSTRATED POULTRY RECORD.

SIR,—Although the subject under the above heading is an old one, I was glad to see it so ably brought forward again by Mr. W. W. Broomhead in your last issue, because I think that an affirmative answer to the question, if carried into effect, would remove many of the nasty suspicions which, no matter how honest a man he may be, a judge involuntarily feels creeping about his conscience when doing his work—feelings which are bound to interfere with the carrying out of that work. But if, on the other hand, he went through his classes with a catalogue before him he would, as your contributor says, be put upon his mettle.

His reputation for honesty and fearlessness in placing the awards would become a more real thing and less tainted by those unkind and generally purely malicious and false accusations which the best of us have to suffer sometimes. If a dog judge is entrusted to pay all his attention to the doggy end of the chain, even though the latter is held by the owner of the exhibit, as is often the case, why should we not be granted at least an equal share of the public's confidence? Of course, a judge would never please everybody, even if he were an archangel; but I do believe that if the man who has to place the awards at a poultry show were given the same chances of proving his integrity and impartiality as he who judges at other competitions—such as horse, dog, and agricultural shows, art exhibitions, choral contests, and the like—he would do it feeling that he had the confidence of the public at his back, which means a lot; and not only that, but the insinuating complainant who has not won would be deprived of the intense satisfaction of informing his friends that of course it was a foregone conclusion—everybody knew that the judge had the numbers of the winning pens on his finger-nails, or some bosh of that kind!

It is a good deal harder now for a judge to indulge in favouritism than it used to be. His profession is getting so filled up, and he knows that many of the exhibitors understand judging as well as he does, so that he is very often constrained from doing evil deeds by sheer force of circumstances, even if he wished to do them. At the same time, there are men who will submit to "squaring," who will risk the censure of the Press and of all unprejudiced observers for the sake of the ill-gotten gain on the "I'll-scratch-your-back-if-you'll-scratch-mine" principle. It cannot be hoped that judging with an open catalogue will put a stop to this evil, but I feel sure it will mitigate it for this reason. An unscrupulous judge, who awards prizes to his friends' birds as often as he can, without having things made too hot for him, always swears he did not know whose birds he was judging under the present custom, and it would be a risky matter, as well as an unpleasant one, to call him a liar. But place a catalogue in his hands, and it is as good as saying "There, now you know who the exhibits belong to; let us see if you have the honesty and integrity to judge them on their merits." And I think that nine times out of ten he could be relied upon to do his work more fairly than on the present system. He would feel rather flattered that so much confidence had been placed in him, and would make the best of it.

To allow the public to jostle the judge's elbows while he is engaged at his task—at the best an unenviable one—is altogether wrong from every point of view, but personally I should very much like to see every judge with a catalogue in his hands. Trusting that this correspondence in your much-appreciated columns may help to bring about that desirable change, yours, &c.,

A. T. JOHNSON.

MEN AND MATTERS.

By W. W. BROOMHEAD.

THE keeping of Bantams is not often indulged in solely from a utility standpoint, albeit Bantam eggs are frequently considered a great delicacy. But that the Bantam Fancy in this country is a strong one goes without saying, since whenever adequate provision is made for the "wee yuns" at exhibitions it is rarely indeed that a satisfactory entry is not forthcoming. One of the most prominent fanciers who have been closely identified with pigmy fowls for a considerable number of years is Mr. Fred Entwistle, and it is questionable if a better establishment exists than the one which that gentleman possesses at The Firs, Calder Grove, near Wakefield. That the stud is a thoroughly representative one can be gathered from the fact that there are eighteen varieties at The Firs and no fewer than thirty breeding-pens. The runs are all of grass, and they are over thirteen acres in extent.

The Entwistle strain is of no mushroom growth. It has been in the front rank for many years now, yet despite its age it is not allowed to drop behindhand, and to keep it up to date its owner does not hesitate to infuse fresh blood when the occasion demands. Mr. Entwistle has lately added to his stud of White-crested Black Polands—with which he was successful at Tunbridge Wells and Norwich and many shows of less importance in 1907—two splendid pullets. These birds are from a Scottish fancier, whose father, it is interesting to note, purchased his Bantams from the late Mr. W. F. Entwistle about 1886. Both of the pullets have been line bred, and they are as near perfection as it is possible to breed Bantams. Mr. Entwistle has also increased his Polands by recent importations from the Netherlands of a typical crested pair, hence he now possesses a really choice collection of the variety. There is also a good lot of whites, all of which are in the breeding-pens, and what chickens there are from the matings are already showing shapely knobs, one of the chief points of the Polish breed.

Wyandotte Bantams are also a feature at this establishment. The whites have been increased by the repurchase of a hen bred by Mr. Entwistle in 1906, and which won first prizes at the Crystal Palace and Salisbury Shows and seconds at Liverpool and York, together with two of her daughters and a son sired by the Palace cock. These birds are now in their original quarters, and although during the earlier part of the season eggs from this pen were clear, they are now proving very fertile. The Calder Grove Partridge and Silver-pencilled Wyandotte Bantams are universally known. Of the former variety Mr. Entwistle has put together four different matings, and if later on the progeny does not get very near the top, if, indeed, not at the head itself, it will be a matter of great surprise.

Hatching operations at The Firs commence in January, but the busiest season for Bantam chickens is when most keepers of large poultry are thinking of

breaking up their breeding-pens for the year. Of the chickens already out and doing well are Black-red, Brown-red, Pile and Birchen Modern Game, Blue-red and Spangled Old English Game, White and Black Pekins, Partridge, Silver-pencilled and White Wyandottes, White and White-crested Black Polands, and Light Brahmans, and by the time these notes appear in print Indian Game and Buff Pekins will have been hatched. It is interesting to note that artificial means of hatching and rearing are not employed, the whole of the eggs being set and hatched under hens. The particular kind of broody is a Silkie cross, a cross-bred fowl, it may be added, which is much in vogue with gamekeepers for the hatching and rearing of pheasants. The percentage of fertility is as high as ninety, and the latest results in this direction are 11 chickens out of 11 eggs, 8 out of 8, 16 out of 18, 7 out of 7, and 6 out of 8, and strong chickens, too! About 40 hens were sitting last month, as nearly the whole of the eggs are incubated at home, since, to quote Mr. Entwistle: "The egg business is not my business. I do occasionally sell when I can spare the eggs, but that is not often."

Mention of Bantams reminds me that Mr. Entwistle is once more attempting to bring about a much-needed reform in the exhibiting of Pekins. Of late years it has been common knowledge that perhaps more success in showing this breed has been achieved by the art of correct and fashionable tail removing than by the otherwise high merit of the competing specimens. In short, to win it has been the custom to fake the birds in very many instances. Some readers may feel disposed to resent the use of this harsh word in connection with the practice and be inclined to argue that, since it has been commonly resorted to of late years, the custom of plucking the tails of Pekin Bantams is—well, as legitimate for exhibition purposes as the dubbing of Game fowls for the show-pen. Be that as it may, it has for long enough been nothing short of a scandal in the Bantam Fancy, and the sooner a firm stand is made to put it down the better it will redound to the credit of those whose names are connected with this particular breed. It is not the first time that such an attempt has been made, and some twelve or more years since Mr. Entwistle strongly held out against the then growing fashion of showing Pekin Bantams with drawn tail feathers. But at that time his was the voice in the wilderness. He writes to me, however, that he has discussed the reform with leading exhibitors, who appear to be unanimous that the change, exhibiting Pekin Bantams honestly with their tails in and at full length, will be appreciated. The present crusade was started at Delph Show this year, and, although Mr. Entwistle's action was ridiculed by certain exhibitors, there cannot be any doubt that everyone with the welfare of the Fancy at heart will welcome the new order of things. Reforms move slowly; and in the poultry line at least there is none which has not met with an amount of opposition at the outset. But since a leader has now been found it is to be sincerely hoped

that he will have a good following, and that ere another show season comes around the prevailing fashion will be entirely stamped out.

I see that a new Game Club has been formed in Wales, and that at a meeting held recently "The Old English Game Fowl Club of Wales" was launched to look after the interests of large Game and Bantams in the Principality. To those who have followed the history of Game Clubs in Wales this is, perhaps, a matter of surprise. There is no gainsaying that Welsh fanciers are particularly keen on the breed, and that in various parts some of the best Game in the world are bred and shown. The Fancy is steadily advancing, but it is questionable if the time is yet ripe for Game fanciers to support two clubs of the same kind. Until recently there used to be the Welsh United Game Club and the Welsh Modern Game and Game Bantam Club—for short, the United and the Modern. The former has flourished since its inauguration, and it has now held two or three successful shows devoted exclusively to Game fowls. It caters for all species of Game—viz., Old English, Modern, Indian, Malay, and Aseel. The Modern Club was formed early in 1906, when the older club had been in existence for some time. But it did not have a long run, since it was officially announced that at a meeting of the club held at Llanelli on May 30, 1908, the members decided "to cast in their lot with the Welsh United Game Club in the belief that it would strengthen the Fancy in general," while from an official report of a meeting of the United Club, held on June 9, 1908, it appears that members of the Modern Club decided to throw in their lot with the older society. Later in the same year, however, it was rumoured that the amalgamation had not taken place; but it is quite apparent that the younger club lapsed into a winding-up stage, as nothing has since been heard of it. There was a suggestion, certainly, of a Game Bantam Club for Wales, but that, too, has evidently not made any headway. It has always been felt that there is not room in the Principality for two such clubs. Nevertheless, "The Old English Game Fowl Club of Wales" has been formed, and it remains to be seen if the Game Fancy is yet strong enough to support both clubs.

There is a likelihood of a new variety of Wyandotte being placed on the market during the forthcoming show season—to wit, the White-laced Black. Those who have it in hand, and at present it appears to be limited to two fanciers, speak in high terms of the variety—which is perhaps only natural. And one claims to have produced it by working on absolutely independent and original lines, and to have made such successful progress with it as to have specimens ready for the any other variety classes at this year's Dairy Show. Another new variety of the same breed, and one which may make its débüt in the show-pen this season, is the Pile. This latter colour is a most difficult one to breed to anything approaching standard requirements and at the same time to retain the general characteristics of the Wyandotte. But I had the opportunity recently of seeing samples of the Pile, and I feel sure that it has

advanced sufficiently to be placed before the public as a new breed.

There is some talk of holding a combined specialist club show in the near future. The idea is not an entirely new one; and, if I am not greatly mistaken, it was the aim of those who gave us the Grand International Show eventually to make that annual event such a combination. But, although the International no doubt holds the record as regards the number of specialist club shows held together at any one venue, the idea of combining the whole of the specialist clubs apparently did not prove serviceable, since "the greatest poultry show of the year" is for all intents and purposes the old Crystal Palace series revived. Many fanciers would no doubt welcome such a combination as that which is suggested by the Black and the Buff Orpington Clubs, and the proposal to hold the shows alternately in the South and North is certainly a move in the right direction. But, in my opinion, there is not room for such an event. The show season, and especially during late autumn and early winter, is already very much overcrowded. Not only so, but the big and important exhibitions throughout the country have reached their limit. This will, of course, be doubted; but events during the past two or three years have proved that there are already sufficient of them. There was never a better-managed show than Norwich, but it had a very short existence. The old Liverpool series had to be abandoned, and an attempt to revive it cannot be said to have been successful. Sheffield, too, had a try at running a big poultry exhibition, but it had to give up in despair. Then we must not forget that the Poultry Club once dabbled in shows, but burnt its fingers in the experiment.

One of the most difficult things nowadays is to make a big show pay its way. I suppose it is common knowledge that the first three or four International Shows were financial failures; and it is probable that they would never have been a great success from a monetary point of view had it not been that the Great National retired from the field and the Grand International was thus able to step into its shoes. But one must not forget that "the Palace" Poultry Show is a national institution, and it attracts more buyers from all parts of the world than any other event of a similar nature held in this country. Beyond this the important poultry events of the year are already well distributed, and with perhaps one exception they are now being run on up-to-date lines. Most of them adopt Poultry Club rules, and in all cases they form a very strong feature of the agricultural shows at which they are held. The suggested combination would doubtless be a great scheme, but I question if the specialist clubs are financially strong enough to bear the many expenses attaching to the successful running of a huge venture. Few of them are in such a happy position as the Black and the Buff Orpington Clubs in possessing large balances at the bank. But there are many things to be considered in connection with the scheme; and those who have the matter in hand will be wise

to act on the American's advice and "make haste slowly."

The 1909 show season cannot be said to have opened under the most favourable conditions, and at what is acknowledged as the first exhibition of the series, that at Delph, near Oldham, it was noticeable that the unpropitious weather experienced during the early part of the year has not had a beneficial effect. The season has, in fact, been a somewhat backward one, chickens being rather scarce and eggs not hatching at all satisfactorily. And, added to this, the high price of feeding commodities, combined with the general trade depression, has not given fanciers much cause to feel satisfied. At Delph, however, an alteration of the prize-money without a reduction of the entry fee may have had something to do with the slight decrease in entries. The show seems to be unlucky as regards weather, and at the recent event a very heavy downpour of rain helped to maintain its reputation in that direction. There was, however, a good gathering of fanciers; and, bar the atmospheric conditions, the meeting was a pleasurable one. Mr. Walter Firth's Pile Game Bantam hen, which has a good show record behind her, secured the specials for the best fowl and the best female in the show, while Messrs. Heys's Indian Game was awarded the special for the best cock. The annual show at Ayr was well supported with entries. Some of the old heavy breeds came up well, and there was a very representative turnout of Scots Greys, Hamburgs, and Andalusians. Orpingtons, too, were strong classes, and the entries of Minorca hens and Plymouth Rocks (there were 36 of the latter in the two classes) must have been a pleasant surprise. Wyandottes were forward in good numbers, and the same may be said of the Game and Bantams.

One of the most important of the Irish events came off at Belfast last month. This was the spring show of the Royal Ulster Agricultural Society held at Balmoral on the 19th, 20th, and 21st ult. In the live poultry section there was a good classification for Orpingtons and Wyandottes, while among the competitions were two for trussing poultry and one for plucking. The Somerset County Agricultural Association held a meeting at Glastonbury on the same days. But perhaps the most interesting English event towards the end of last month was the "Bath and West" at Exeter from the 26th to the 31st. The poultry section of the fixture is always a prominent part of the show; but the affair is of too long duration to tempt fanciers to exhibit many of their very best specimens, especially in the chicken classes. Details of the event, however, were not to hand at the time of going to press with this issue of the RECORD, so I will refer to it next month.

Otley Show is ever a favourite with fanciers, more particularly with the northern contingent. The classification is always up to date, and at this year's event no fewer than 70 classes were scheduled for poultry, and the result was about 800 entries.

The first of the June shows will be the Welsh International at Treorchy on the 1st, and everything points

to the affair being a success. A fairly extensive classification is given for all sections of Game and Game Bantams, although, with the exception of Orpingtons and Wyandottes, the other breeds are not very liberally catered for. Three county agricultural shows open on the 2nd inst.—viz., the Northampton, at Thrapston; the Wiltshire, at Marlborough; and the Hereford and Worcester, at Leominster. At the first-named event four prizes are offered for all breeds of fowls, but the classification is not very extensive. Orpingtons get six classes and Wyandottes four at the Wiltshire fixture; nevertheless, the poultry classification needs a thorough revision to bring it up to date.

The "Royal Counties" Show at Reading comes off on June 8, 9, 10, and 11, and there is every reason to believe that the turn-out in the poultry section, despite the reported dearth of early chickens, will be as big as usual. It is the first event of the season in the South at which Home Counties fanciers are likely to meet a contingent from the Midlands, since the generous prize-money and low entry fee generally attract a few "teamsters." Another fairly important show which will this year clash with the "Royal Counties" is the Royal Cornwall Agricultural Association's Exhibition at St. Columb on the 9th and 10th inst. The chief breeds catered for here are Game, Orpingtons, and Wyandottes, and there are nine classes for Bantams. The Shropshire and West Midland Agricultural Society's Show at Shrewsbury is fixed for June 17 and 18, while towards the end of the month, from the 22nd to the 26th, there will be the "Royal"—the seventieth annual show of the Royal Agricultural Society of England, at Gloucester. Almost a hundred classes are listed for poultry, and the section will again be held under the rules of the Poultry Club, while among the special prizes are the club's ten-guinea challenge cup and two five-guinea silver cups offered by the Gloucestershire branch of the Poultry Club for members resident in the county.

June promises to be a busy month with exhibitors in Ireland, and among the events fixed may be mentioned Dungannon on the 8th, with Omagh and Portadown, both on the 9th and 10th, Bandon on the 10th, and Antrim on the 11th. These are followed by Ballymena and Coachford on the 16th, Newtownards on the 17th, and Strabane on the 18th. Then come Armagh on the 23rd and 24th, Ballymoney on the 25th, Nenagh on the 29th, Mallow on the 29th and 30th, and Newry on the last day.

Chief among the July shows will be the Wirral and Birkenhead at Bebington on the 13th, 14th, and 15th, which, however, clashes with the Sussex County at Hove and the Mid-Kent at Maidstone on the 14th and the Lincolnshire County at Louth on the following day. The "Highland" will be held at Stirling on July 20, 21, 22, and 23, and the Staffordshire Agricultural at Tamworth on the 21st and 22nd. The ever-popular Tunbridge Wells is booked for July 22 and 23, and the Leicester County at Hinckley on the 28th and 29th, while the "Royal Lancs" opens at Southport on July 29 and closes on August 2.



Chickens' Requirements.

With the advent of summer weather (which may or may not coincide with the suggestions of the calendar) it very commonly happens that the chickens of the inexperienced or careless feeder fail to respond to the rattle of the food bucket, or that they are dainty or entirely "off their feed"—that expression so often used by despairing correspondents, who enclose a detailed and perhaps admirable dietary. In most of these cases the dietetic rules are found to be defective as regards the quantity and frequency of the feeding. Probably the growing chickens are getting four meals a day where three will be ample, and possibly the quantity thrown down is altogether in excess of the requirements. There is a failure to realise the extent to which the character of a suitable rearing-ground is changed—in its feeding value—by the approach of summer, and consequently growing chickens are overfed to an extent that must be seen to be believed. This neglect to make the quantity of food proportionate to the season and to the stage of growth is perhaps the most common mistake in connection with rearing. As the chickens progress in growth and development the intervals between their meals must be increased, and although it may be thought that, as this reduction in the number of meals coincides with an increase in the size of the birds, a greater bulk of food is required at each meal, it does not necessarily follow that it is essential in practice. As a matter of fact, the increased available quantity of natural food to be found on a good range is generally sufficient to justify a reduction, and thereby encourage the activity that is essential to health and progress. Although soft food is preferable in the case of chickens being reared for market, there are occasions when dry food is beneficial. When chickens indicate by their behaviour that the feeding of soft food has been mismanaged, the quantity should be reduced and its feeding alternated with that of suitable small grains, until a normal appetite has been restored. By the adoption of this plan, directly the birds show any distaste for the soft food, the need for physicking may often be avoided; and directly the hay is carried the birds may be removed to the

newly mown meadows, where fresh interests will be as helpful as a rearranged food-table.

Open-fronted Houses.

Those producers who have not kept abreast of the times in their details of management would realise the inadequacy of their housing accommodation if they visited a tightly-shut roost-house some hot night in June, when the atmospheric temperature combines with the high degree of animal heat that is characteristic of fowls to render the conditions unhealthy and more or less unbearable. The preservation of hardiness, health, and profitable production depends to a very considerable extent upon the sleeping conditions, and success in the desired direction is best attained by the use of open-fronted houses—not open to the depredations of the fox as are the farmer's cart or bullock lodges, but protected by wire netting. It has been found that fowls will thrive and remain productive during the winter in open-fronted houses—subject to common-sense modifications—so that there need be no laboured arguments in favour of such a method in summer. The construction of a wire-netted front in the case of a permanent building is a comparatively simple matter, provided it is situated out of reach of the horned stock. The open-fronted colony-house, for use on the fields, is another matter in view of the almost unavoidable approach of cattle, and it is advisable to limit the open wire-netted section to the upper portion of one side—or both sides if suitable shutters are provided, so that the windward side may be closed. Permanent houses that must consequently remain open in one direction are very effectually protected against a head wind by the use of canvas shutters, made in sections for arrangement as necessary. Such houses are now made in so many varieties that there is no difficulty in finding a suitable structure for the requirements.

Care of Appliances.

It was recently remarked, by one who is in a position to know something more than the average man about the appliance trade, that it is a very common thing for a user of incubators and other appliances to reckon the

life of a hatching or brooding machine at no more than three years of full work. Without attempting to suggest how far such an estimate may generally apply, it may safely be said that it is altogether inadequate to the capabilities of good machines that are properly looked after. Some appliances are shamefully treated by their users ; nevertheless, the average producer cannot afford (upon the basis of poultry-producing profits) to let his appliances go the way of so many agricultural implements. It might be thought that the economics of agriculture demanded some greater attention than is at present given to the preservation of implements ; but however that may be, the poultry-producer must not neglect such an important detail. Good appliances are worth their money, and are seldom very cheap, so that their preservation is a vital necessity in many cases. When hatching is over, the incubator requires overhauling, cleaning, and, if necessary, repairing, and suitably storing without the week or so that is frequently allowed to elapse between the removal of the last batch of chickens and the next passing thought that is bestowed upon the machine. The out-of-use brooder should not be exposed to the influences of the open, but promptly returned to the shelter of the store--after scrubbing, limewashing, painting, and curtain-brushing.

The Later Goslings.

Those producers whose objective is the London market generally nowadays appreciate the inducements to hatch early, rear rapidly, and dispose of their goslings young—before the end of June ; but those who are young in experience, or whose birds are late hatched, should remember that the more usual provincial demand commences to be worth their attention in September, or in some cases during August. It is, therefore, in many circumstances better to run the birds on for some near-at-hand market than to force them upon the metropolis too late in the season. Although the profit of these birds depends so largely upon the reduction of the cost of production by the utilisation of grazing opportunities, the desired end will not be attained by any reduction of the supplied food that is out of proportion to the available herbage and glean.

SUCCESS WITH LATE BROODS.

By H. DE COURCY.

THOSE who have failed to raise as large a number of chickens as they expected in the early part of the season need not feel discouraged, for there is still time to make up the deficiency by rearing a few broods hatched in early June, and they can be reared without difficulty, if carefully tended. The secrets of success with late broods, as discovered by the writer in the course of a long and varied experience in raising chickens of many breeds at all seasons, are disclosed in the following paragraphs :

1. The attendant must take the same interest in the late broods as was taken in the first chicks of the year, and must give them as full a share of attention as was

found necessary for raising the early chicks. This is not often done, for the interest in one's work begins to flag when it becomes necessary to repeat the same operations month after month and to continue them into a time which to many seems unseasonable. Failure with late broods may in many cases be attributed to this lack of interest and attention, and unless the poultry-keeper has made up his mind to take a keen interest in his late chicks and to give them all the care they need he had better leave the eggs unset and send them to the nearest grocer's shop, for he will make more money this way.

2. Eggs from quick-maturing breeds ought to be chosen for late setting, because chickens of the larger breeds, which are slow in developing, will prove unprofitable when late hatched. Leghorns, Minorcas, Wyandottes, or any of the small or medium fowls, will lay in November or December if hatched now, and may thus prove more profitable than earlier hatched chickens of the same breeds ; but if Dorkings, Brahma, Langshans, and fowls of this kind have not been hatched by the end of April, it is advisable to refrain from hatching them until autumn or early winter. Hatched at this time, they will come in as large roasters in spring, when prices are always remunerative.

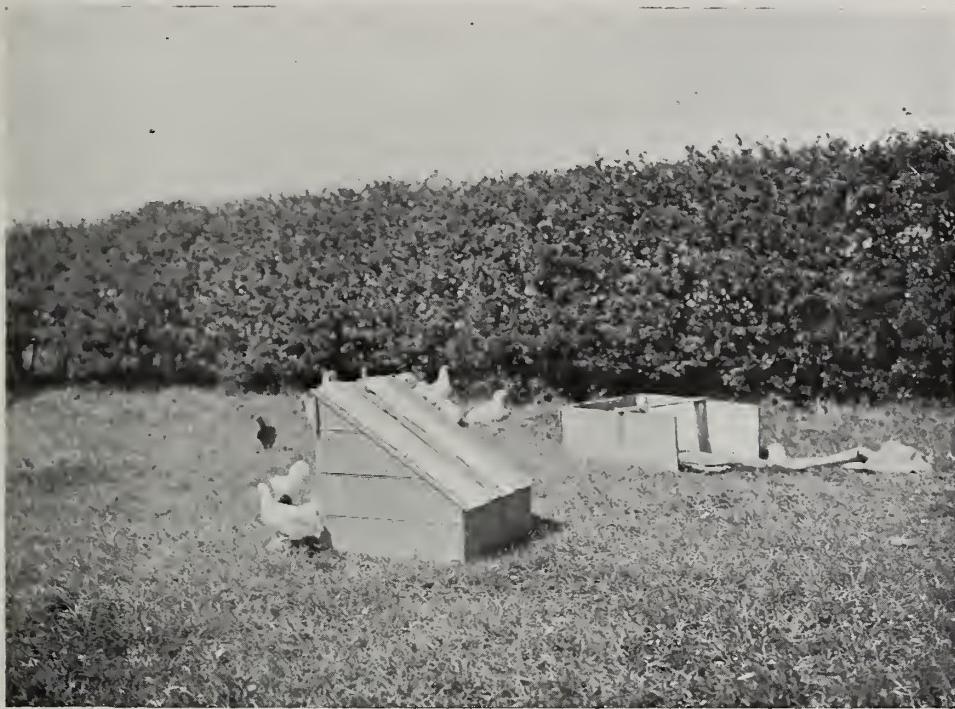


A LATE BROOD.

[Copyright.]

3. It is of primary importance that eggs selected for hatching late in the season should come from fresh stock. By this I mean that failure will generally result from hatching eggs from the stock which have been confined to their breeding-pens since, perhaps, last December, whilst success is attained by making up a pen of stock birds which are "fresh"—birds which have not been yielding eggs steadily for months past. In

order to have stock fresh for late breeding it is always advisable to keep two or three male birds reserved keeping them away from the hens until they are required for the making up of a late pen ; and hens or pullets can be taken from amongst those which have hatched and reared early broods, and which have thus been relieved from the strenuous task of egg-laying for a considerable



[Copyright.]

ONE ADVANTAGE OF LATE HATCHING IS THE BETTER SHELTER AFFORDED BY HEDGES IN FULL BLOOM.

part of spring. A pen made up from such fowls will supply eggs which are far more suitable for late hatching than the eggs from a pen which has been laying continuously for several months.

4. Now that the weather has become warm, very great care is necessary in the collecting of eggs off the nests at frequent intervals throughout the day, and also in the keeping of them if they have to be kept for many days before being incubated. June is a month of great broodiness amongst hens, and in a very few hours a broody hen in the laying-boxes will spoil any new-laid eggs she sits upon. Again, we have a higher temperature now than we have had for some time past, and it is inadvisable to store the eggs in a warm pantry or kitchen, if there is any cooler place where they can be kept.

5. Late broods will not live or thrive upon the same ground as has been occupied by the earlier chicks, and herein lies the mistake which is most often made by those attempting to raise late chickens. Let them be provided with a piece of ground which has not been occupied by poultry this year or at least for the past month or two, and let them have clean, freshly painted coops and other appliances, and there is no more trouble about raising chicks in June than there is in March or April.

"POULTRY-BREEDING : PROBLEMATICAL AND POSSIBLE."

To the Editor of the ILLUSTRATED POULTRY RECORD.

SIR,—As my experience with the progeny of laying competition winners has been directly contrary to Mr. Edward Brown's assertion that weakness in the progeny results from breeding from these birds, I have made inquiries both amongst breeders and purchasers of stock and eggs from winning strains, and find that their experience coincides with my own.

From America we have had in the past [the testimony of Dr. Gowell regarding the stamina of the heavy layer, the "sprinter," based upon personal knowledge of birds whose egg output in every case exceeded 200 in their pullet year, that the one thing they all possessed in common was—strong constitutions.

From Australia we have the assurance of Mr. D. F. Laurie, founded on personal knowledge of the winning birds in a year's laying competition, and on personal knowledge of their progeny, that the percentage of strong, vigorous chicks hatched from these birds and their mothers has been exceptionally high. From England there comes such a mass of assurances regarding the stamina of the progeny of certain winning strains

that I fear the ILLUSTRATED POULTRY RECORD would not hold them all

The problems that I would ask Mr. Brown to solve for us are therefore these : If weakness of progeny results from heavy laying, how comes it that, as I have been assured, the whole of the stock of one of Australia's most successful breeders is descended from a single 285-egg hen? How comes it that the progeny of this weakened "sport" has continued to win competition after competition, both in Australia and New Zealand? This progeny cannot have obtained its vigour from "new blood," for it has been scientifically line-bred (what we in England generally call inbred) for some seven generations. It is asserted that the progeny of heavy layers do not attain to high averages, yet these birds have accomplished a world's record. This last effort ought to have so enfeebled this weakened progeny as to have extinguished the strain ; but, lo ! the daughters are again in "the running" in the New Zealand year's laying competition. How is this?

Where the birds are reared by hens, sensibly fed, and permitted to have a reasonable amount of freedom, I know of no case in which weakness has shown itself in the progeny of winners or heavy layers. I do know of one strain where over-fat birds were used as breeding stock,

and from them much disappointment has arisen. It was not because of heavy laying that they failed to produce strong and heavy laying progeny ; it was simply because they fell into the hands of a novice in breeding and rearing, especially in feeding, who then disseminated the progeny of these over-fat, therefore unfit, birds throughout the land. But although Mr. Brown saw these ill-effects when the strain came into his hands, that does not prove that all winners are unfit to breed from.

In *Poultry* for January 1, 1909 (p. 14), are given details of the laying and subsequent performance of the progeny of a Buff Rock pullet. She laid more eggs than any competition hen has ever laid in winter ; yet, instead of being unfit to breed from, she produced in her pullet year a cockerel who sired the winning pen in the competition held eighteen months later. I have received particulars of a Barred Rock hen (from another farm) who laid 220 eggs in her first year ; four of her pullets laid from November 1 to February 28 324 eggs ; four of their daughters laid in the same time, the following year, 306 in very bad weather—one of these laid 211 eggs, and the pen of 16 averaged 185 for the year. Not one of these or their chicks ever ailed for a minute. All these birds may fairly be classed as winners so far as egg averages go.

Mr. Brown looks upon the 250-egg hen as a "sport," a mutant, but this can scarcely be conceded. Were a 250-egg hen to arise among the progeny of the wild jungle hen she might reasonably be called a "sport" ; but where the average of a whole family (not a mixed flock) is already high, then a few birds laying from 220 to 250 eggs can scarcely be regarded as mutations, any more than a "Boskoop giant" bearing 5½lb. of currants per bush would be regarded as a "sport" among those averaging 4½lb. per bush, though it would be so from the wild currant.

Mr. Brown asserts that "without fear of exaggeration it may be stated that the cock and hen from which the first prize pen in the Street Competition is bred are, as breeders, worth ten times as much as the winning birds themselves." That is in theory, and the second problem I would ask Mr. Brown to solve is this. During the first laying competition at Bagshot, 1907-1908, a home pullet laid seventy-five eggs—that is to say, she would have led in a winning pen had I been competing. This pullet, her mother, and grandmother were all mated to one sire, and their daughters composed the pen of "home birds" that led with 268 eggs in the second competition in 1908-1909, the pullet's daughter taking the second place. Further, another of her daughters is the heaviest layer on the farm this year, and both lay the largest eggs of their breed. How does this happen, if they are not worth a tenth of the old bird's progeny ? All are descended from a 230-egg pullet. The old birds and the winning pen have again been mated to one sire—a cockerel—and although he is full brother of the same age as the pullets, yet no one can discern any difference in the chicks, who are hardy and strong. This is not meant to support breeding from young stock—personally, I prefer three-year-old

hens—but it proves the stamina of winners. There were no cases of sickness and no losses amongst the chicks of this breed last year, reared on the Spartan system of a free run all day with their mothers and the colony plan from five weeks old. How comes this ?

In further proof of the stamina of winners I will ask Mr. Brown to solve one more problem for me. The following tale can be attested to by others. Amongst the home birds who sleep in the trees are two who refused to descend during the snowstorm in December. They remained high in a leafless oak tree from Monday until Friday without food, enduring thirty-six hours' snowstorm, with an easterly gale and twenty-seven degrees of frost, followed by a whole day of drizzling rain, and they descended on the Friday in perfect health. In ten days one recommenced to lay and the other in twenty. One was the inbred daughter of a pullet hatched from the pen containing the *heavy layers* who produced the winning American White Leghorns in 1904-1905. The other was the full sister of the "home birds," of a different breed, in the competition, and both had been housed until October. If heavy layers and winners are unfit to breed from, how comes it that their *inbred* progeny show such hardiness ?

On the subject of stamina and laying competitions, Mr. Vander-Snickt has also drawn a lugubrious picture of the farmer losing all his fowls at two years old from ovary troubles. This is also in theory. In practice I have looked in vain for those birds. I have in my possession fifty old hens, kept because of their high laying qualities. Nearly all are the progeny of "sprinters," and many have been heavy layers themselves in their youth. They are from three to six years old, and their egg average for the past year (nearly all sleeping in the trees) has been 125 eggs, on a diet that did not include green-bone or spice, and meat was only given for one month in the year. There has not been a single case of egg trouble amongst them or any of their relatives.

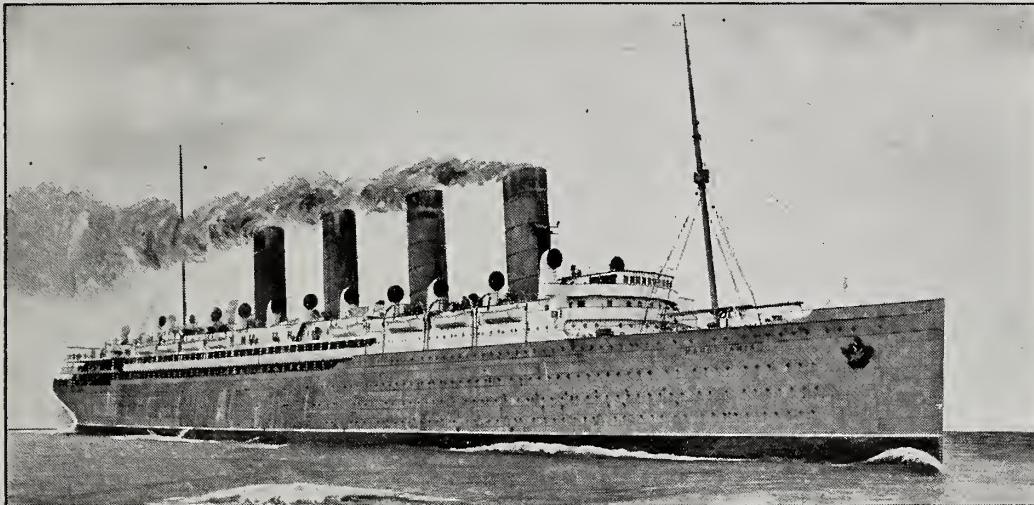
I strongly suspect such cases are due to breeding from birds fed on over-rich diet or kept in over-confined quarters (and to two other causes which are wide of the present issue) rather than to heavy laying, and the words "forced" and "stimulated" are misapplied to the heavy layers and lead to misapprehensions. Had all the pens in the competitions laid the same number of eggs as the bottom pens we should have heard nothing about stimulating them to lay a large number of eggs, yet it was on the same food that the winners made their high scores. No one would accuse a man of having "stimulated" a bird to lay thirty eggs in a year, yet that was the score of a Partridge Wyandotte sleeping on the same branch as an American White Leghorn who, *on the same food*, laid 230 eggs.

In face of so many facts I trust that Mr. Brown will forgive me for differing from him, until he, too, produces proofs (of modern date) from which it can be clearly shown that disappointment in the progeny of winners and pedigree layers is distinctly traceable to weakness caused by heavy laying, and not to any other cause.—Yours, &c.,

The Folly, Bagshot.

A. S. GALBRAITH.

POULTRY FATTENING IN THE NORTH



R.M.S. MAURETANIA.

LIVERPOOL is a hive of industries of many kinds, the dwelling-place of an enterprising, progressive people, whose outlook upon life is very wide and deep. From the Mersey river go forth those leviathan steamers which are the wonder and envy of the world. Congregated around is a vast population, engaged in the serious business of life, ever ready to strike out into new developments, with an equal capacity for meeting present-day requirements and anticipating future needs. It is, indeed, a hive of commerce and industrialism which has few rivals. Not only must the inhabitants be fed, and they believe in good living, but they are providers to the hosts of ships leaving the port daily, almost hourly. When it is remembered that one of the Atlantic liners starts each trip with 25,000 eggs and 5,000lb. of dead poultry it will be realised that in the aggregate the steamship trade for these two articles of food is enormous, and demands a vast amount of organisation to meet. At once we have the explanation why so large a proportion of Irish poultry produce is landed at Liverpool, there to serve the floating hotels and multitudinous vessels which cross the seas. It was not until we had travelled by the Cunard steamers, and learnt of the wonderful supply of provisions which must be taken every voyage, that we realised what an important share this branch has in the trade of Liverpool. It is scarcely surprising, therefore, to find that efforts are being put forth in directions wherein they would otherwise not be looked for. The Liverpool district has for long been the home of ardent poultry-breeders of all grades, large and small. At Knowsley, almost on the outskirts of the city in these days, game fowls were the sport of one of the

Earls of Derby, giving the name to a famous strain in the cock-fighting era. We have often wished for access to the archives of that mansion to study the records there. Keen fanciers are to be found on every side, and practical poultry-breeders abound. But as the land is more and more absorbed for other than agricultural purposes, opportunities are correspondingly reduced.

To the enterprise of Mr. James Ruddin, one of the largest poultry dealers in the city, is due the establishment of what is now the most extensive fattening establishment in the United Kingdom. It is concerned chiefly with supplying the shipping trade, though many birds from thence find their way to the London and other markets during the spring months of the year. He is the owner of a large cold storage plant, in which he sometimes holds 200,000 head of poultry, so that his business is self-contained in every sense. Three or four years ago a commencement was made at West Derby, in the disused stables of the Liverpool Corporation Tramways—an excellent place for the purpose in every way, save that it was too far out, involving heavy expense for cartage, and not large enough, though it accommodated 4,000 birds. A move has recently been made to huge shedding adjoining Stanley Station on the North-Western Railway, and within three miles of the centre of the city, with trams passing almost every minute. This great building was formerly used for stabling, but with the electrification of the system the need for that has gone. A better place for a fattening plant could scarcely be devised. It is 180ft. long by 150ft. wide, and from floor to apex of roof 18ft., so that for head room and ventilation it is exceptionally good.

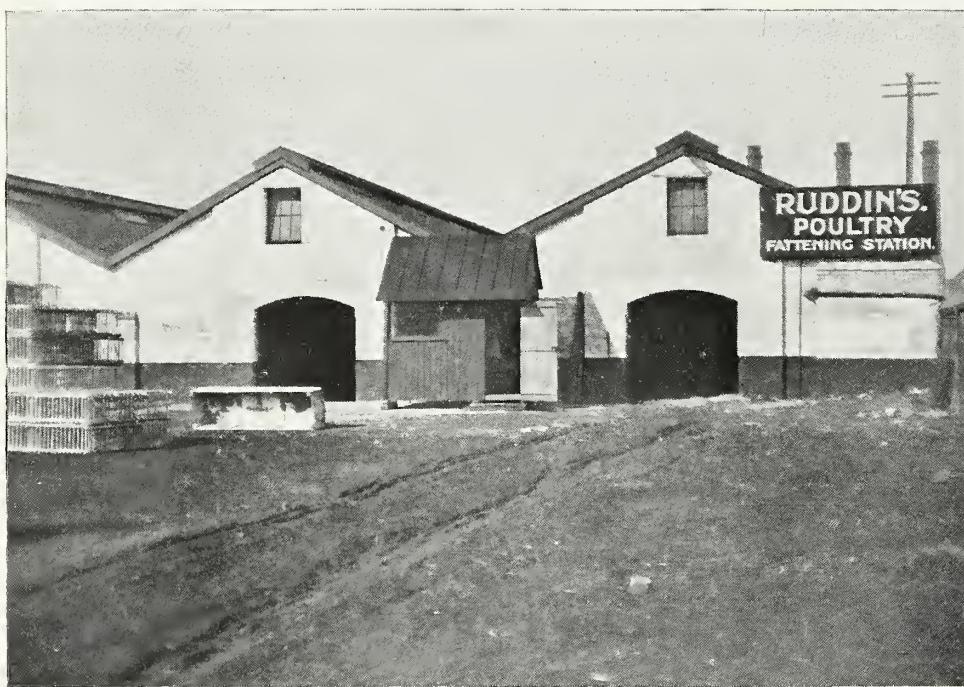
At each end are several double doors, and it is satisfactorily lighted by many windows all around.

The illustrations given herewith will afford an idea of exterior and interior. The passage ways between the

which Mr. Ruddin rightly lays the greatest stress, which can only be obtained by rigid cleanliness. Last year, when the new premises were not fully occupied, 108,000 chickens were fattened.

A suitable designation for this concern would be "Chicken Factory," for it is here that the raw material, in the shape of lean birds, are turned into the fully fleshed finished product shown in one of our photographs. Mr. Ruddin does not attempt rearing, but is content to purchase when the fowls are ready for the final process. The great bulk of the chickens are imported from Ireland, and in this respect he has a considerable advantage over the Sussex men, in that the cost of carriage is considerably less than when they are sent to Uckfield or Heathfield. His own agents buy in the various Irish markets, and ship direct to Liverpool. As a consequence the class of fowl in the cages is rather mixed, though that is often the case elsewhere. The marked improvement in the quality of Irish produce is evident, as compared with what was the general type a few

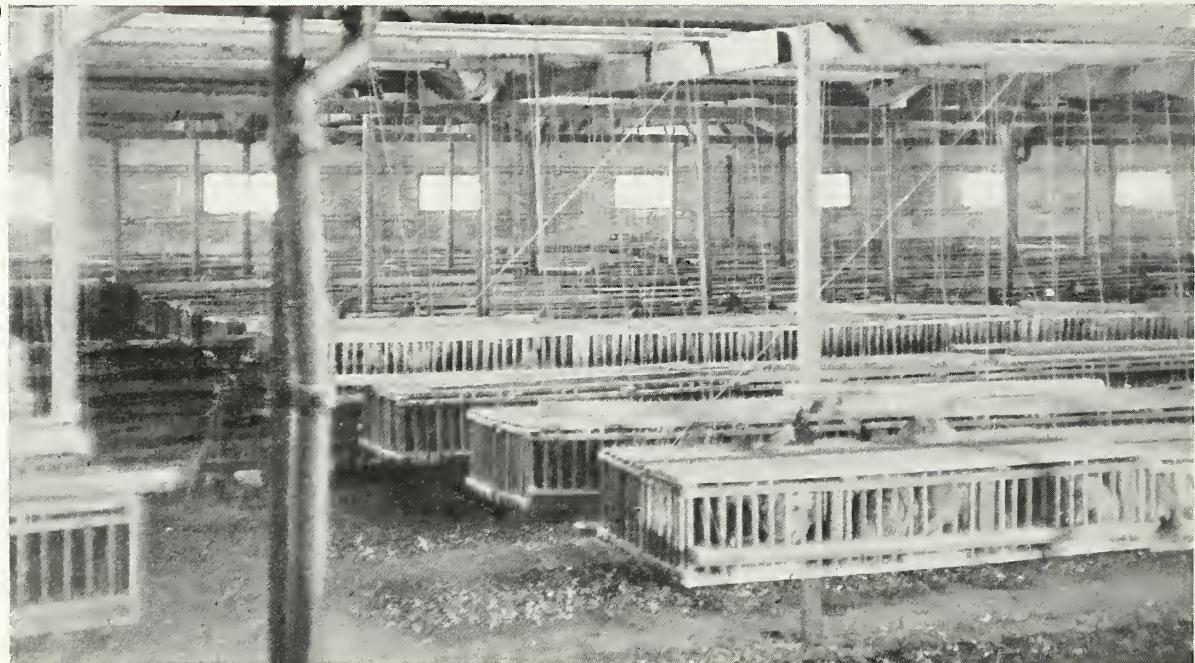
years ago, though there are too many with yellow legs and flesh. As a rule, however, they are of good size and fatten fairly well.



GENERAL VIEW OF BUILDINGS.

pens are about 5ft. wide, and the work is facilitated by provision of cross alleys every here and there. There are no fewer than 1,340 cages, and as each accommodates fifteen birds, the total capacity is 20,100 chickens at one time; and be it noted that all are in single tier. We know plants on the Continent and in America where the fattening cages are stacked, and if such a system were in vogue here the number of inmates could be greatly increased, but the English system of single rows has been wisely adopted. In order to promote cleanliness, instead of wooden bar supports all the cages are suspended to the roof girders and beams

by stout wire strands, of which several miles were needed. Such a method is to be commended in every way, as the droppings fall through to the ground. In fact, everything is done to promote sweetness of atmosphere, upon



THE FATTENING-SHED, SHOWING HOW THE CAGES ARE SUSPENDED.

The food used is oatmeal, not ground oats, and as the details as to cost are worked out to a decimal fraction, it is interesting to learn that the above-named meal is found to yield results, in Mr. Ruddin's judgment, equal

to those of the best Sussex product. Sometimes a little Indian meal and thirds is mixed with the oatmeal, and in all cases soured skim milk is employed to bring the food to a proper consistency. Generally speaking, the Sussex method is followed throughout, for when the business was established a batch of skilled fatteners from that county were engaged, so that the work might be on the best lines. Of these eight are employed, with Mr. Robinson, a former Reading College student, in charge of the administration. We were interested to note an improved shaping board, in which the loose strip of wood compresses the bodies by means of wedges, thus avoiding the use of weights.

A large proportion of the chickens are sold fresh, and we understand that the great steamship companies prefer these; but during the summer and autumn all except those for immediate use are wrapped in grease-proof paper and neatly packed in dozen cases for keeping in cold storage until they are required. It is evident that one of the developments in the near future, so far as the fattening industry is concerned, must be the use of cold storage. By this means the production period can be extended, and at a time when demand is below the supply—that is, after the game has come in, when chickens are plentiful and prices are below the profitable point—to some extent the spring market can be provided for. Mr. Ruddin has realised that fact, and others must do the same.

LAYING COMPETITION OR TESTS?

To the Editor of the ILLUSTRATED POULTRY RECORD.

SIR,—In their contributions under the above heading both Mr. Elkington and Mr. A. T. Johnson have taken up a subject which for some years past has been discussed in the poultry and agricultural papers, and its importance is my only apology for dealing with it at such length.

The competitions were intended to demonstrate the possibilities of the laying hen, to prove the existence of good strains, and to stimulate public interest, and I do not think that the present condition of the utility poultry industry justifies the Utility Poultry Club in relaxing any of its efforts in these directions.

Before the promotion of laying competitions there was no evidence of the existence of any good laying strain in this country. It is true that various advertisements drew attention to "phenomenal layers," but that hardly sufficed for the earnest breeder, and the result has been that any breeder who was successful in the competition

had at once a great demand for birds and eggs of the same strain.

Mr. Elkington alleges that the competitions directly and chiefly benefit the specialist breeders, and only indirectly and in a minor degree the rank and file of the utility poultry-keepers through the distribution of im-



THE FINISHED PRODUCT.

proved stock. This statement is plausible enough on the face of it, but will not bear looking into; for while one specialist makes a larger initial profit on the sale of sittings, a very great number of poultry-keepers make much more from the introduction of the strain in their yards, though the financial gain is not, of course, obtained until a year later.

Again, it is urged that the Club is encouraging the development of "sprinters," birds that will lay a great number of eggs at the expense of so much loss in stamina as to be useless for breeding from, while one well-known authority has expressed an opinion that no laying competition winner should be bred from at all! With the competition established for over ten years there ought to be some evidence of the truth of this contention, particularly as the same strain has occasionally figured in successive competitions. As a matter of fact, the breeders refute these statements, and Mr. Hewitt, who has been one of the most successful in the competitions, most emphatically shows that his pens have not deteriorated through competition.

Mr. Johnson's article is interesting as the first indication of the lines upon which a reformed competition is to be run, and I will try to deal with a few of the more important of his proposals. The Club is often accused of the expense of these competitions, and some people have gone so far as to point to them as showing the impossibility of making poultry pay. I have never been able to appreciate this reasoning, nor do I understand why, say, the Rothampstead experiments in wheat-grow-

ing should prove the impossibility of growing corn at a profit, because the expenses of conducting the experiment are largely in excess of the amount received for the produce.

If the competitions are to *prove* strains and to demonstrate the prolificacy to be attained by the most up-to-date methods of poultry-keeping, the supervision must be such as will ensure the best of management and the faithful recording of all that is essential. The person who fulfils these requirements must be adequately paid, and the records and results must be published, in order that the full benefit of the competition may be derived ; need-to add, these expenses must be largely in excess of any receipts. It would seem that the test is to be conducted upon the colony system by a farmer who has a knowledge of poultry, and who would be able to prove the possibility of making poultry pay, and his only remuneration is to be what he can make from the sale of the eggs. I am very sceptical that anyone suitable will be found to carry on a test upon these terms. If it is intended to show the profit a farmer is likely to make, methods of economy will have to be adopted, both as regards feeding and management, such as are recommended to the small holder.

With each house to be moved thirty times, I think there would be great difficulty in arranging that the positions were equally good both as regards exposure to winds and supply of natural animal food. Some guarantee ought to be forthcoming that the test is faithfully conducted, and that eggs laid away are collected and recorded to the correct pens. This can hardly be entrusted to the wife or children, and no special poultryman is to be permitted, the manager being expected to do most of the work and train a farm hand or other person on the spot to assist him.

Birds will mix unless separated by considerable distances, so that either the manager or farm hand will have to traverse great distances if the test is of any size, or wire netting must be employed, and both these considerations militate against economy in administration.

No weighing of eggs or allotting of points is to be allowed, and therefore the approximate value only of the production of each pen is to be ascertained. In both of the two recent competitions the size and weight of the egg was an important factor, and affected the position of the pens in the order of merit considerably.

If one thing more than another has been demonstrated by the laying competition, it is the importance of the trap-nest. As Miss Galbraith points out, what is the good of having five birds of an excellent strain if the sixth is a bad layer, probably producing all her eggs in the breeding season, and from which a large proportion of the chickens will be hatched? Yet in the test no trap-nests are to be used.

A test upon the lines outlined by Mr. Johnson may serve a useful purpose in demonstrating economy in management, and as such the proposal is entitled to some consideration. Such a demonstration cannot, however, be very convincing to the general body of farmers, whose conditions of climate, soil, labour, price of food, markets, &c., must vary very greatly in nearly every case. As a substitute for the existing laying competition, I am sure it would meet with disapproval, and any attempt to modify the present competition in the direction indicated would be viewed as a retrograde step.

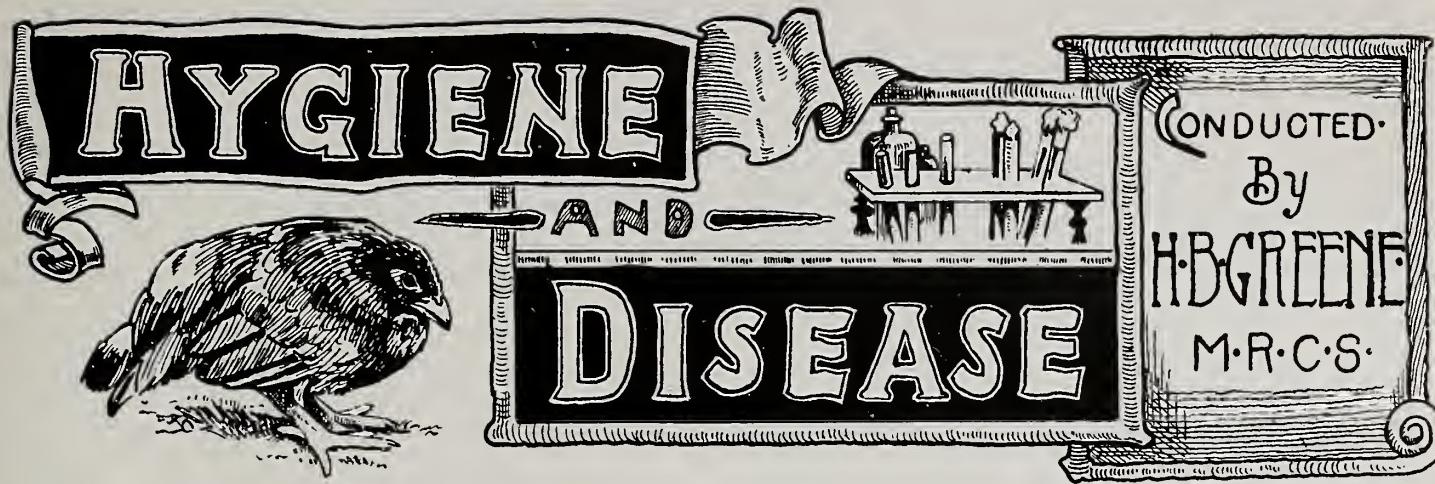
The thoughtful and scientific breeder would feel his birds were not getting a fair chance under such management as is indicated by Mr. Johnson, and the other conditions are to be carried out in such a rough-and-ready way that he would hesitate to allow his birds to take part. Certainly I agree with Mr. Johnson that the new contests should not be called laying competitions, from which they differ in many essential details. They might, I think, be called field tests for layers, as suggested by Mr. Johnson, and it will be interesting to see what support the proposal will have.—Yours, &c.,

B. W. HORNE
(Vice-President Utility Poultry Club).



FEEDING TIME.

[Copyright]



POST-MORTEM EXAMINATIONS.

We have made arrangements by which post-mortem examinations of poultry and game can be effected for our readers upon the following conditions :

1. *The specimen is to be forwarded postage or carriage paid and securely packed to "Biologist," 297, Trinity-road, Wandsworth Common, London, S.W.*
2. *The fee of 2s. 6d. (stamps will not be accepted) must be remitted with each specimen and a letter giving particulars of feeding and housing, or any symptoms which were observed before death.*
3. *Birds should on no account be addressed to the office of the paper. If forwarded there they will be returned to the sender.*

It is recommended that specimens be dispatched by parcels post, where practicable, and as soon after death as possible. A reply will be received by letter, defining the disease, its cause, treatment, and prevention.

Crooked Breasts.

Regarded alike from its fancy or utility aspect, the deformity of crooked breastbone in poultry is a most undesirable quality, and when present greatly detracts from their value. Many an exhibition specimen, equal to rival competitors in all other objective points, is left "out of the money" because, after handling the bird, the judge discovers this defect. Often, too, on the same account does it happen that a consignment of well-fattened table chickens fails to realise its expected market price, and a pair of plump roasted fowls, be they ever so nicely browned, lose much of their aesthetic attraction when the carver is compelled to explore the unknown coastline of a zig-zag bone in an awkward endeavour to dig out fragments of breast meat. It is, perhaps, about this time of year more than any other that crooked breast is most in evidence, chiefly because there are more chickens just now of an age at which the malformation becomes prominent. What are its causes? For long the popular reply to the query has been "Perches"; perches round or perches square, perches thick, thin, bevelled, flat, or triangular. All in

turn have been denounced as the primary cause of the evil. And advice to this effect is often tendered quite irrespective of the fact that the query is generally put on behalf of chickens that have never seen a perch of any description. Now, while willing to admit that a transverse indentation and flattening of the breastbone, accompanied by an external corn on the skin met with in perching fowls, is to be ascribed to the pressure effects of unsuitable perches, I have found ample proofs that in nearly all instances the deformity commonly known as crooked breast (the distinguishing feature of which is a concavo-convex curve in the line of the blade-bone) commences at a very tender age, and is induced by the hard floors either of brooders, coops, or sheds. In chicks that have been on such floors, by running the finger along the edge of the cartilage, a deviation from the straight line may be noticed sometimes as early as the second week after hatching. In the third week the curve is more easily recognised. On the other hand, anyone can assure himself that in the newly hatched chick the line of the keel is perfectly straight. And a simple breeding experiment of mating two crooked-breasted birds will convince any who are sceptical that the deformity is not transmitted, and therefore there need be no fear of breeding from stock that have acquired it, provided only that the offspring are properly looked after as regards bed and board. My own experiences in this connection are confirmed by the statement of a fancier who is no mean judge and breeder of stock. This gentleman assured me that, when opportunity offered, he frequently claimed cockerels at shows that were crooked-breasted but in other respects of good type, and that so far he has never had reason to regret his purchases, nor ever found them throw any but straight-breasted chicks. Heredity can therefore be safely ignored, and the question of perches is of less importance than that of floor-covering, especially of the sleeping quarters. This should be of sufficient thickness, soft, frequently renewed, and raked up to prevent caking every evening.

An Abnormal Egg.

The photograph reproduced below of a curious, but not uncommon, form of deformation in eggs was kindly submitted by a correspondent. It represents a large soft egg, easily indented, as may be judged from the depression near the top of the picture, and apparently



normal as regards its contents. The membrane, however, instead of merely enveloping the ovum, is prolonged, as though it were a cast of the interior of the oviduct. The explanation of this freak is that there has been functional over-activity in the portion of the duct that throws off membrane; perhaps some temporary congestion from cold or the abuse of condiments. It is sometimes also a sign of the cessation of laying in hens that have been richly and bountifully fed.

Perforation of the Gizzard.

There are doubtless many persons who would see in the recently removed gizzard of a fowl nothing more than an object of commonplace and uninviting aspect. Yet the organ will well repay closer inspection. On dividing a gizzard by cutting it in the axis of its length it presents two points of striking interest. One is the density and toughness of the leathery lining, arranged in corrugated folds that remind one of the dressing of millstones, and admirably adapted to withstand wounds from sharp glass, flints, nails, and other forms of scrap-iron that often find their way there. The other notable feature of the organ is the massive thickness of its muscular walls, the muscles being so disposed as to utilise, as opposing surfaces, every portion of the interior, while at the same time exerting their contractile power on the contents. Owing to these two qualities, few substances wholly resist the action of the gizzard. Solid glass marbles will become worn down until small enough to enter the intestine, while broken glass appears to be as harmless as flint grit, although liable to wound the crop, gullet, or ventriculus before reaching the gizzard. Nevertheless foreign substances do occasionally bring about a fatal issue, and such an instance I met with very recently. An Indian Game Cock was supposed by the owner to be suffering from obstruction of the crop. The

bird fed well, but the crop seemed to empty slowly, and in some details the symptoms observed did not altogether conform to those of crop impaction. About five days afterwards death took place, following on a full meal, and it occurred suddenly. On examining the bird, I found no disease, but piercing the whole thickness of the wall of the gizzard was a straight, stiff piece of galvanised wire about 2in. long. The blunt end protruded on the lining, while the point had perforated the muscular wall. It had been forced through by a contraction, just as a needle might be propelled by a thimbled finger.

BLACKHEAD AND WHITE DIARRHŒA IN POULTRY.

By FRED. V. THEOBALD, M.A.

THE disease known as "blackhead" in turkeys takes its name from the peculiar discolouration of the head, which is accompanied by considerable swelling. A diseased condition in fowls, pigeons, partridges, &c., presenting exactly similar internal appearances, does not as a rule show the external symptom seen in turkeys, although, in two cases, I have found it in fowls. Perhaps a better name for this disease is "entero-hepatitis." It is also sometimes spoken of as "parasitic liver disease." As far as I can see, it is exactly the same as the so-called white diarrhoea in fowls.

Its fatal nature is well known to poultry-keepers, as is also the fact that it is highly infectious; for the latter reason it has sometimes been designated "infectious entero-hepatitis." The exact germ of this disease seems to be still in dispute, but from several cases that have recently come under notice it seems that the causative agent is a parasitical protozoon, which has been described as *Coccidium tenellum*. In all the cases examined this minute organism has been present. Moreover, the inoculation with matter containing these protozoa in an encysted stage—they are frequently found in the dung—has produced the disease in carefully isolated chicks. Bodies similar to those described by Theobald Smith as *Amœba melagridis* may also be found.

This complaint is found in old birds as well as in turkey poult's and in chicks only three or four weeks old. In the latter the mortality from this cause was very heavy in two localities in 1908, one being in South Devon and the other in Ireland. The disease is well known in Continental Europe and in America, and I am inclined to believe it is far from uncommon in this country. It first came to my notice in some turkeys on the South-Eastern Agricultural College Farm at Wye in 1898. Mr. E. J. Lewis investigated the matter, and isolated from the cæca and from serous fluids in the heads of the attacked turkeys great numbers of coccidia. These were evidently *Coccidium tenellum*.

The importance of this disease, and the still uncertain cause, necessitates much further investigation, and this is being undertaken. The rapidity with which it kills

young turkeys was shown recently in America, where twenty-six out of twenty-eight birds died, and the two remaining birds were in very poor condition.* It appears to prevail in most of the Eastern States, and many outbreaks have occurred in the Western States. Investigations made in America show that in all the turkeys affected with "blackhead," large numbers of the parasitic protozoon *Coccidium tenellum*, which is undoubtedly the causative agent of white diarrhoea and coccidiosis in poultry, are present. That this disease in both turkeys and fowls is very infectious there is now no doubt, and its fatal nature is equally assured.

In 1895 Theobald Smith referred to the parasite causing blackhead as *Amœba meleagridis*, but it seems that he mistook the host cell in which the true parasite was living for the actual parasite and the parasite for the nucleus of the host cell. Laveran and Lucet refer to the parasite as *Leucocytozoon Smithii*. Doplein and von Prowwazeh, in 1903, and Neumann and Macqueen, in 1905, questioned Smith's *Amœba* as being the cause. Byron Morse has shown the persistent presence of *Coccidium tenellum* in the white diarrhoea of chicks in America and in smears and scrapings from the caecal contents of turkeys attacked by the so-called "black-head." From recent examinations it seems to me that with us the same organism is the causative agent in both cases. But there may be something further underlying this. In any case, it is strange that in this caecal disease in birds this *Coccidium* (whatever species it really is) is always present, and that in its encysted stage as found in the faecal matter it can, by introduction, give rise to similar effects.

The external symptoms, with the exception of the swelling and darkening of the head in turkeys, are not marked. As a matter of fact, we cannot say that even these symptoms are a certain diagnosis, for a similar dark puffiness may be seen in poultry suffering from verminous attacks and tuberculosis of the alimentary tract. Diarrhoea is frequent, and the excretions are white and sticky. But this may also be the case in other diseases, particularly where the white worms (*Heterakis*) are prevalent. At present no very definite symptoms can be pointed out, although the birds are generally listless and become more or less emaciated. The post-mortem appearances are, however, very marked, and if careful examination is made it cannot be confused with the effects of any other disease. The caeca are found to be more or less enlarged and to present an unhealthy appearance. Inflammation is noticeable; the walls become very much thickened, and there may be traces of dull grey or even creamy masses of exudate on the serous covering. Internally, in advanced cases, the caeca are found to be full of a cheesy mass, often completely blocking up the lumen. The walls are more or less spotted with grey, and there may be sanguineous matter amongst the cheesy substance. In advanced cases the liver also

becomes affected. At first small, dull grey areas, about the size of a millet seed, are to be noticed, and by degrees these spread outwards until they reach as much as half an inch across. Some of these areas become mottled, and, later, cheesy in appearance; the latter colouration starts from a central spot and spreads outwards. In its final stage it resembles to a great extent a tuberculous lesion. Considerable increase in the size of the liver is also noticed.

The presence of the diseased caeca at once points to the protozoal nature of the complaint, but it is well always to take steps to ascertain if the tubercle bacillus or the *Coccidium* is present.

From recent observations on chicks sent me from Ireland and South Devon it appears the disease starts in the caeca, for in all the youngest ones examined they alone were attacked, but in birds two months old traces of the parasite were found in the liver. Death may, however, result long before the liver is affected, and this is usually the case with chicks.

In 1908 an epidemic in partridges in several parts of East Kent took place, and the birds examined showed exactly similar lesions to those noticed in turkeys and chicks, and a parasite answering to the *Coccidium* of the fowl and turkey was present in numbers in the caeca scrapings of the birds sent me.

The life cycle of the parasite is not completely known. It is an oval, short, broad body varying from 12 to 20 M in length. It occurs in the cells of the caeca and in the hepatic cells, both of which it destroys. It occurs in the dung as rounded cystic bodies about 20 M in length, frequently in enormous numbers.

These cysts get devoured by the birds on tainted food, in soil and in water, and give rise to small bodies called sporozoites, and these enter the caecal cells and become bodies known as schizonts, which grow in the cells and rupture them, and eventually pass out in the encysted form found in the white faecal matter. Multiplication takes place apparently in the walls of the caeca, and masses of the protozoa pass into the lumen of the sacs and so to the gut and out per the cloaca with the faeces. The same appears to happen in the liver, where the parasites invade the hepatic tissue and there reproduce in a similar manner. As they increase, the parasites destroy the hepatic cells and spread outwards, and eventually reach the bile ducts and so the intestine. The normal course seems to be first the infection of the caeca, then the liver, and perhaps later the head, in the last stage giving rise to the so-called "blackhead" disease.

There seems no doubt as to the original seat of disease being the caeca, for in all young birds examined it has only occurred in these blind intestinal sacs, whilst in nearly all old birds, or those young ones which have not succumbed to the first invasion, the coccidia have been present in the liver as well.

Whether the *Leucocytozoon Smithii* of Laveran and Lucet plays any part in this disease, or whether the two organisms have been confused, we cannot say at present. In all I have seen there has been but a single nucleus,

*Twenty-fourth Annual Report of the Bureau of Animal Industry
p. 59, 1907 (1909).

with one exception, when the Leucocytozoon was present in some numbers. That the two diseases—black-head and white diarrhoea—are the same there is considerable evidence to show, and we find that the *Coccidium tenellum* is present in the diseased areas.

All observations go to prove that healthy birds, put on ground where poultry which have suffered from this disease have run, soon become infected. Also that feeding with food contaminated by the cysts found in the droppings of diseased birds will cause the disease in from two to four weeks. It is evident, then, that attacked birds should be isolated, and that chicks and young turkeys should not be allowed to run on tainted land. Although it appears that the disease cannot be carried by the egg internally, we must remember that this protozoon, whatever its exact name may be, will adhere to the eggshells as they pass out of the cloaca.

Nests, floors, &c., may also become soiled with the birds' droppings, and so the cysts may be attached to the eggs, even after having been laid. Further, we must not lose sight of the fact that the disease is carried by eggs to the incubators, and so the young brood becomes infected, and then the floors of the foster-mothers are contaminated by the chicks' droppings, and the disease may there spread rapidly. Cleanliness and general sanitation is thus most essential in incubators and foster-mothers.

Fortunately it appears that salicylate of soda administered in two to four grain doses will alleviate this disease. This may be given in the form of a pill, or may be placed in the fowls' drinking water. In America additional treatment is given in the form of sulphate of iron, at the rate of half a grain to each bird in the morning.



Comparative Breed Popularity in America.

The American Poultry Association reports that at 124 shows from which records were obtained the total entries of the respective breeds were as follows :

Plymouth Rocks.....	14,514	Rose-comb Bantams	144
Wyandottes	12,320	Javas	117
Leghorns.....	8,740	Japanese Bantams ...	115
Rhode Island Reds..	5,812	Dorkings	105
Orpingtons	2,857	Brahma Bantams.....	104
Langshans	2,153	Buck-eyes	95
Minorcas	1,709	Silkies	85
Cochin Bantams.....	1,590	Spanish	83
Game	1,277	Redcaps.....	71
Brahmas	1,181	Sumatras	41
Cochins	1,010	Polish Bantams	37
Hamburgs.....	758	Sultans	18
Game Bantams	637	Malays	12
Polish	618	Frizzles	7
Houdans	538	La Flèche	7
Indian Game	538	Dominiques	5
Anconas	464	Booted Bantams	4
Sebright Bantams ...	423	Malay Bantams	3
Andalusians	311	Creveœurs	3

Thus it will be seen that Rocks and Wyandottes are more than all the rest together.

Money for Poultry.

The New York branch of the American Poultry Association has passed a resolution, proposed by Dr. E. M. Santee, expressing the sense of the meeting that an appropriation of 50,000 dols. (£10,000) should be asked by the trustees for the completion and extension of the poultry buildings and equipment of the State College of Agriculture in connection with Cornell University. From the spirit manifested in regard to poultry in the United States, we should not be surprised if the amount asked for is secured. We sincerely hope it may be.

Incubator Insurances.

Reference was made in the March issue to the regulations adopted by the National Board of Fire Underwriters of the United States for the construction and installation of incubators and brooders, a copy of which has since come to hand. The requirements imposed are very drastic, more especially as to machines heated by gas or oil, which are regarded as more hazardous than where coal heating is adopted. Flexible connections to incubators are prohibited. Very complete

details are given as to the construction of machines, more especially the lamps, methods of heating, and even management, and in brooders it is provided that "the heater shall be placed in a separate compartment at the end or side of the brooder, and no part of the heater or heater compartment shall rely on solder as a fastening," which would effectively debar a large number of portable brooders on the market to-day. The serious part of these regulations is that by a mutual agreement on the part of insurance companies in the United States no incubators or brooders, or the buildings in which they are used, will be insured unless the machines wholly conform thereto and are approved by inspectors appointed for that purpose. Such compulsion—for it is practically that—means an alteration of the nature of several makes, or withdrawal from the market, as purchasers will be unwilling to use appliances which are uninsurable.

Leghorns in Denmark.

The most common breed of fowls to be seen in Denmark among farmers and cottagers is the Leghorn, in brown and white colour. The photograph shows a

High Prices of Eggs.

The shortage of supplies as compared with demand appears to have been evident everywhere. Records tell that during the past winter in America eggs have sold for 60 cents (half a crown) per dozen, which is far above the usual rate in the Western States. This does not mean decreased production but enormously advancing consumption. Now is the time for all to take advantage, and keep more and better hens.

Poultry for Market.

The *Reliable Poultry Journal* describes the poultry-killing plant of the Batchelder and Snyder Company of Boston, Mass., with a capacity of handling 15,000 birds daily. This is not a fattening establishment, as few of the chickens are fed after they are received. Such a system is not calculated to produce the finest quality of chicken meat, and it is evident that such an establishment can only cater for the needs of a medium class of trade.

Faking for Show.

We thought that plucking mismarked feathers, &c.,



DANISH LEGHORNS.

good collection of two-year-old birds from one of the best breeders, Captain Hansen, Riserup by Norre Alsler, who is owner of a breeding-centre for the Poultry Society. The birds are the right Danish Leghorn type; they are of medium size, and have small practical combs. The cock is bred from a hen which in the first year laid 172 eggs. At the poultry shows one cock and eight hens have very often got first prize.

&c., from exhibition poultry was a purely English practice, but with the growth of shows in America it is becoming common across the Atlantic. Perhaps that was what might be expected. The serious part of the business, however, is that there are those who advocate that trimming and faking should be recognised as legitimate. Apart from the fact that prizes would then go to the "expert dodger" there is the question of purchasers of

birds so trimmed. We know what has been the result here. Having to learn trimming as well as breeding drives from the ranks of exhibitors many who would be the best supporters of exhibitions. We cordially support Mr. Curtis in his onslaught against such a system.

The Greatest Need of To-day.

Professor James Dryden, of Oregon, one of the most practical poultry experimentors in America, in a personal letter to Mr A. F. Hunter, says :

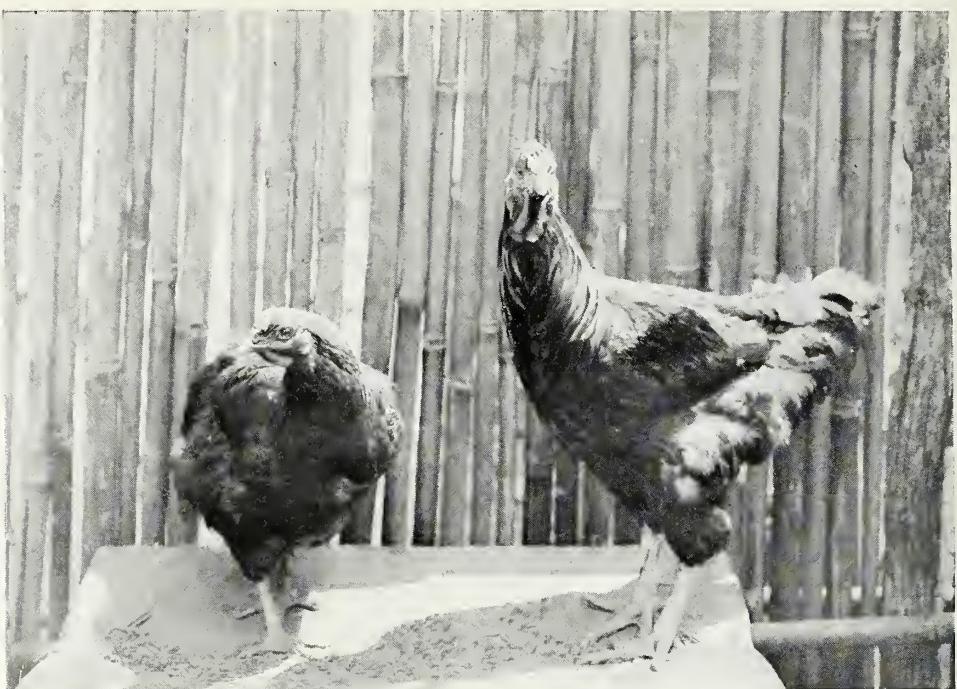
I heartily agree with you that the constitutional strength and vigour of the stock is the most important thing in poultry-keeping, and I would like to see everyone interested take this bull courageously by the horns. It is simply appalling, the losses that poultry-keepers suffer every year from this one cause.

Neglect of natural laws brings its own punishment.

A BRITISH POULTRY FARM IN BRAZIL.

By CHAS. CAUSER.

MY land, about fifty acres in extent, is situated in the municipality, or district, of São João D'El Rey, in the State of Minas Geraes, 8,008ft. above sea



MR. CAUSER'S PARTRIDGE WYANDOTTES.

[Copyright.]

level. It is bounded on three sides by a swiftly running clear stream, with a stony bottom ; the ground is chiefly hilly and of a light gravelly nature, with about two acres of flat rich soil at the lower part, which latter is reserved for agricultural cultivation. Since 1907 the whole aspect of the place has undergone a complete change ; from dense bush it has been slowly transformed into quite a civilised holding with an air of occupation and movement.

As it is about a league from the nearest township, means of transport have to be provided, and we keep two saddle horses and a pack mule, with a cart for light traffic ; in the event of heavy loads we hire one of the old - fashioned bullock wagons so much used even now in this land of hills and rough tracks. These are usually drawn by six pairs of bullocks, and sometimes by as many as ten or twelve pairs, forming a picturesque sight as they go slowly rumbling and squeaking along on their great wooden wheels. All grains and feeding stuffs, except wheat, are grown on the premises, the grinding being done in a stone mill turned by a water turbine ; thus we are quite independent of outside supplies.

My breeding-pens are in a double straight line, there being fourteen in all. They are chiefly constructed of bamboo, thus providing a certain amount of shade from the severe rays of the sun, and also preventing any attempt at fighting between neighbouring cocks. Mulberry



MR. CAUSER AND HIS MANAGER.

[Copyright.]

trees have been planted all round, which in twelve months' time should be of sufficient height to afford plenty of top shade. Next month, when the dry season sets in, I intend to commence building a small chalet to enable me to live on the spot. At present there is only living accommodation for the caretaker and his family.

The incubators are kept in town under my personal supervision, the chicks being sent out to the farm as soon as they leave the incubator. Owing to the extreme altitude and consequent rarity of the atmo-

pastures till the age of three or four months, when they are relegated to the cockerel or pullet pens. I am a follower of the dry feed system, and do not think that in this climate it is advisable to give any manner of soft food, either to the chickens or to the more adult birds. I always keep to roughly ground grain and plenty of greenstuff, with grit, old mortar, and fresh water ad lib. My birds have all come along splendidly, some of the ones bred out here being, in my opinion, better than their imported parents.



GENERAL VIEW OF BREEDING-PENS ON MR. CAUSER'S FARM.

[Copyright.]

sphere I have been obliged to vary very considerably my English methods of running the incubators, as I found that they were not right as regards the graduation of moisture and air, and even now I am obliged to examine the eggs daily and work accordingly. I intend trying a hydrometer to see if it is practicable for this.

Deaths amongst the chickens are almost an unknown occurrence, which I attribute to the climatic conditions and the nature of the soil, all brooders being entirely out in the open. The chickens are all reared loose in the

Contrary to my expectations, I have found that the open weather all the year round is not any more conducive to broodiness among the hens than is the case in England; in fact, I think that it is an incentive to heavier laying. I enclose a few photographs, from which you will see that the farm here is only as yet in its initial stages, but we hope to conform to the Brazilian motto, "Ordem e Progresso," and to go on improving and adding to it from time to time, as circumstances require.



Restrictions on Poultry-Keeping.

Old Country conditions are repeating themselves in New Zealand. The Public Health Committee of the Wellington City Council adopted recently a draft by-law providing that no poultry shall be kept in any part of the city except in a properly constructed poultry-house, with a rainproof roof and properly graded concrete or asphalt floor, and with a suitably enclosed run or scratching ground attached. Each poultry-house must be at least 15ft. from any dwelling or street, and the fence of the run must be at least 15ft. from a dwelling and 6ft. from the adjoining premises or street. In the event of a nuisance being caused, the owner must take steps prescribed by the Inspector of Nuisances. Poultry-houses must be lime-washed once in three months, and runs cleaned weekly and sanded or limed. Clause 2 requires that any person who wishes to keep more than 50 head of poultry must obtain the permission of the Council.

Poultry Institute at Guelph.

The Annual Poultry Institute at the Ontario Agricultural College at Guelph was a great success. Among the speakers was Miss Yates, whose work at Studley College and the Utility Poultry Club's Laying Competition is well remembered. She dealt with "Methods of Trussing and Packing Chickens for Market," and awakened a large amount of interest in a subject which is of great importance. The demonstration which followed the address was successful in the truest sense.

Women's International Conference.

Miss Edwards, of Coaley, is visiting Canada this month to attend the above gathering (which will be presided over by the Countess of Aberdeen), and will take the opportunity of visiting several poultry centres in Canada and the United States.

Governmental Trading.

As an indication of the different way in which questions are regarded in the Colonies and other

countries and the United Kingdom, it is of interest to note that the *Journal of Agriculture of South Australia* contains an announcement that the Government Produce Department is now manufacturing for sale a meat meal which is said to be an ideal food for poultry. Here the raw product would be sold to traders, who would market the preparation.

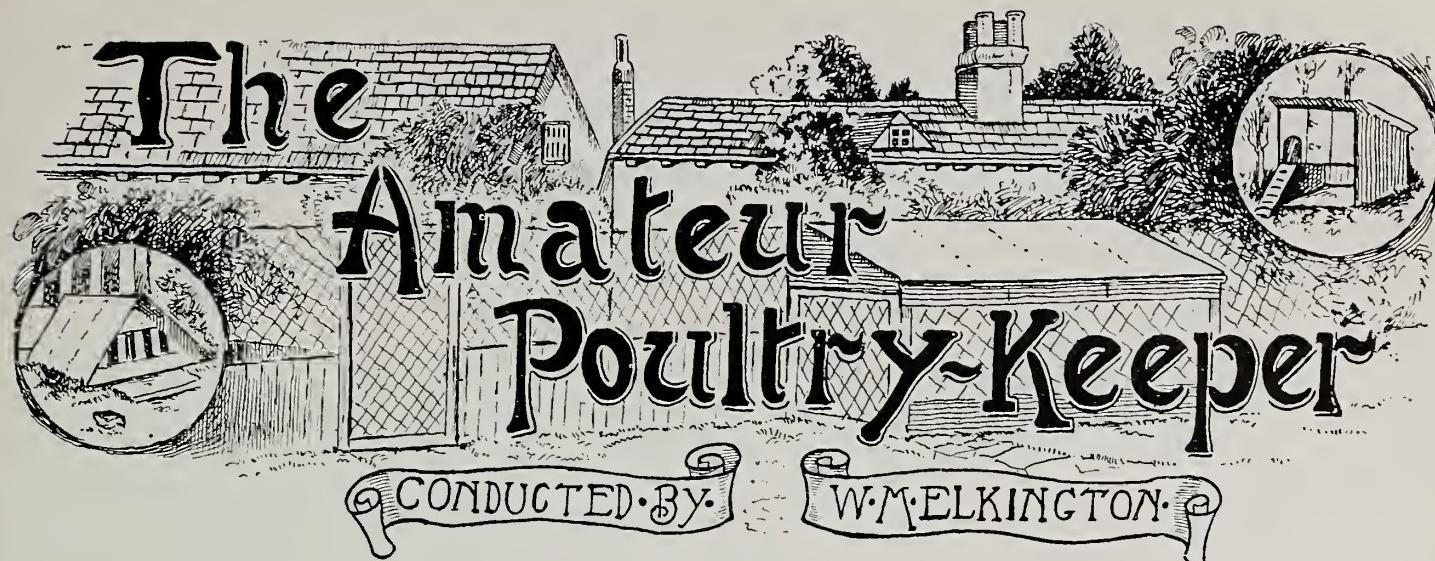
Mr. R. Bourlay.

It is announced that Mr. R. Bourlay, Poultry Expert to the Transvaal Government, is on his way home for a well-earned six months' furlough. Mr. Bourlay was the first Secretary of the National Poultry Organisation Society, and for some time Honorary Secretary of the Ancona Club, and his many friends in the Old Country will give him a hearty welcome.

Progress in Bengal.

The original home of the fowl, India, has lagged behind Western nations in regard to the poultry industry. But, as was recently pointed out, efforts are being put forth to develop poultry-keeping on modern lines. The *Pioneer of Calcutta* says:

Thanks to the personal encouragement of Sir John Hewett, a start has lately been made with organised poultry-farming in these provinces, and it is interesting, as showing the future before the industry, to note that in the New Bengal a spirit of enterprise has been called into existence spontaneously. Already it would seem there exists a flourishing export trade with Burma, which no doubt is capable of great expansion. The towns of Chittagong and Dacca are growing rapidly, and this will bring a larger demand for poultry. Last year fowls, ducks, and eggs to the value of nearly four lakhs of rupees were exported to Burma from Chittagong port, which largely come from the Noakhali district, where a great impetus has been given to the industry by the opening up of the country by the Assam-Bengal Railway. In Burma fowls which cost six annas per head in Noakhali are sold for from fourteen annas to one rupee, and a duck's egg from six pies to one anna against a first cost of two rupees per 100 in the districts.



A Question of Profit.

What is the maximum profit per head that can be obtained from not more than twenty laying hens kept in a small run? I put the limit at twenty, although I am well aware that the majority of amateurs do not keep so many birds, and many have no more than six or eight in a tiny covered run. However, I have recently been going closely into this question of profit, and I think the facts, which will be further revealed, I confidently anticipate, by the essays sent in for our £2 2s. prize, are sufficiently attractive to be placed prominently before the public. There can be no doubt that, as many authorities have long contended, back-yard poultry-keeping, or the keeping of a small flock of laying hens in a small enclosure, is a far more attractive proposition than poultry-farming on an extensive scale for market purposes pure and simple, for the result is largely governed by the cost of production, and no one can produce eggs more cheaply than the amateur who utilises household scraps in the right way. The term "household scraps" covers a good deal, I am afraid, and much of the food that is used would not be considered orthodox by more advanced poultry-keepers. Upon this point, the article by "A Town Poultry-Keeper" on the next page gives valuable and definite advice. But at the same time I have come across several people who feed in a quite unorthodox manner. One man, who was out of work all last winter, and whose ten fowls practically kept the home together, told me he did not buy two shillingsworth of food from November to March, and his hens gave him an average return of nearly 5s. a week. He relied almost entirely upon his own and his neighbours' scraps, and though I by no means contend that this is the way to keep fowls, it shows what can be done in the way of cheap production.

The Advantages of Small Flocks.

It is generally agreed that, so far as egg-production is concerned, the amount of profit realisable per head

depends upon the number of birds kept. The reason is that up to a certain extent household scraps go a long way to reduce the cost of feeding, but beyond that limit there arises the necessity to use purchased food. For instance, an amateur commences with half a dozen hens, and by careful management and the use of scraps he reaps a profit of, shall we say, 10s. a head. Encouraged by this result, he resolves to double his stock, but the returns no longer show such a high profit per head, because the household scraps have to be divided among a larger number of birds, and more food has to be bought. In this way the amateur often allows ambition to override discretion, for whether it pays better in the long run to keep a dozen hens that give a profit of 6s. per head than half a dozen giving 10s. per head, depends entirely upon the space available. Taking all things into consideration, such as housing, the risk of diseases, waste of food, &c., I am inclined to think the average amateur will do better to keep a few good hens and manage them well. As economic production is the basis of successful poultry-keeping, the flock that can be kept most cheaply is bound to be the most profitable.

Early Moultting.

Those who intend to keep young hens on for another season will do well to remember that early moult means early laying next winter, and that if the hens do not fall into moult before the autumn it is extremely unlikely that they will lay any eggs before Christmas. As a rule, hens that were hatched early last year, and that have been laying well all the winter and spring, will moult towards the end of the summer, probably in August or September, but if they can be induced to drop their feathers by the end of July, so much the better. Fanciers moult their hens early for exhibition purposes when necessary, and the same principle can be applied for the sake of egg-production. I have had hens that began to moult in August and continued laying until the growth of the new feathers imposed too great a strain, so that it does not necessarily follow that egg-production must cease before the moult commences. When a

moult is forced, however, by confining the birds to close quarters for a few weeks, they naturally cease laying, but it is better to sacrifice a few eggs at the end of the summer in order to obtain them next winter. The best time to catch hens for moulting is when they have completed a batch of eggs, and have ceased laying or gone broody for a time, being then in rather low condition.

The Useful Mongrel.

A correspondent who declares that he has kept fowls as an amateur for twenty years writes to complain that poultry experts invariably recommend pure breeds. Although my correspondent has never kept a pure-bred fowl, he considers it a mistake to contend that they are better than mongrels, which he has kept with regular success. He encloses some figures that fully prove the excellence of his hens as layers, and if all mongrels did as well I should have no hesitation in recommending them. As it is, I am quite willing to admit that there are some excellent layers among the mongrels, as there are among the pure breeds. One of the most prolific layers I ever had was a mongrel I bought as a broody, that commenced laying when her chickens were three weeks old, and continued, with barely an interval for a moult, until the following spring. I sold her then to an amateur, who kept her for two more years, and bred from her, but never produced a pullet that could hold a candle to the old bird. That is the point. There are no strains of mongrels, as there are of pure breeds. You may get a few good mongrels here and there, and many bad ones, but among the pure breeds there are many well-bred strains in which laying traits have become fixed characteristics.

Big v. Little Hens.

The big hen requires more food to keep her going, but it does not necessarily follow that she will produce the most eggs. As a matter of fact, it may be accepted as an axiom that, whereas in a small hen the food consumed goes largely to produce eggs, in a large hen it is chiefly used to maintain physical condition. Time and again the little hens have proved their superiority as profit-makers, and though they may not be preferable in all cases they are certainly more suitable for the amateur's small run. In no breed of fowls are the large birds the best layers. It is almost invariably the other way about.

FEEDING FOWLS IN SMALL RUNS.

By A TOWN POULTRY-KEEPER.

WHEN I first started to keep fowls in close quarters I was told that the chief difficulty I should find would be the feeding. I did not think it much of a difficulty at the time because, like many others, I fancied feeding was a very simple matter, and that nothing could be easier than throwing food down to the hens. However, that was a good many years ago, and I have found out there was some common sense in that early advice,

and I never miss an opportunity of repeating it to others.

The small poultry-keeper has more trouble in feeding than the man who runs his hens at liberty, because in the first place he has to find them every bit of food, greenstuff, meat, grit, and shell they eat, and, secondly, because it takes a lot of practice to give confined hens enough food to do them good without overdoing it. We back-yarders are commonly supposed to keep our fowls for next to nothing, feeding them on scraps from the kitchen and any odds and ends that nothing else will eat. But that idea is not correct, and, if the truth were known, very few people use house scraps properly, and a good many ruin their hens with them. I have known people who have read in the poultry papers about house scraps being cheap and good for fowls, and have thrown down everything just as it came from the house, the result being that the birds got too much, and got it in the wrong form and at the wrong times. I have used house scraps pretty regularly for the last few years, but I should not advise anyone to try and do without anything else. To a certain extent this kind of food is cheap and good, but one meal a day is plenty, and the hens must have corn for the second meal to keep them fit and healthy. However, scraps save a big piece off the food bill for the amateur, and those who use them with judgment will find they go a long way towards making small poultry-keeping successful.

Perhaps if I explain my own methods it will help others to adopt them. Scraps are carefully sorted out for use. Bits of meat and bones are fed separately once a day by way of a stimulant, and fresh and cooked greens are also given to the hens at any time, as these are beneficial and have not a fattening effect. Pieces of bread crusts, cooked potatoes, pastry, and cakes are put into a stock-pot to soak, and next morning they are warmed up over the kitchen fire, the liquid being strained off and a few handfuls of middlings mixed up with them to make the stuff fairly dry. This kind of food cannot be thrown down in a small run, as it picks up too much dirt; it should be fed on a board or in a trough. Most hens eat it greedily, and, if they have a chance, will consume so much that they will do nothing all the rest of the day—which is the worst thing that could happen to them. I generally allow a good tablespoonful to each hen, and then, if they are still hungry, a few grains of corn are thrown down to make them scratch, and in the winter I make it a rule to do this immediately after the soft food, to prevent the birds from standing about and getting cold.

Feeding is a difficult task if there is no accommodation for scratching. Some town poultry-keepers keep their hens on a bare patch of hard ground, and never give them a chance to take any exercise. Scratching is the only exercise available for closely confined fowls, and as an aid to digestion, and for keeping birds fit, is the finest thing in the world. I advise those who have very small runs to cover them all over so that the birds can scratch about in the day in all weathers; this investment will well pay for itself in a few seasons.

With a good big shed one can feed cheaper and make the food do more good, and the hens will find something to do all day long.

The high price of wheat hits the small poultry-keeper very hard, for I have tried all kinds of grain, and there is nothing that suits fowls in small runs so well as wheat. If I could get a good sample of fat oats with the ends clipped off, as they sell them in some parts of England, I would use them instead of wheat just now, but, like most small poultry-keepers, I can only buy in

with it, plenty of light wheat and barley, a few oats or oat husks, and various smaller seeds, the whole being cheap and very attractive for the innocent amateur. Some merchants sell tons of this stuff every year in small quantities, but I can answer for it that there is no saving in it, and it is far better to buy sound, plump grain, and make up mixtures with wheat, oats, dari, buckwheat, and peas.

Most people who begin to feed fowls find difficulty in judging the proper quantity to give, and very few err on



POULTRY RUNS IN AN ORCHARD.

[Copyright.]

small quantities, and local cornchandlers do not stock them unless they can get a good sale. The big breeder has an advantage over us in this respect, being able to buy extensively and at comparatively lower rates, and, of course, he has a better selection to choose from. A bushel of corn lasts me a good time, and there are many who buy it by the stone and half-stone, so we do not get a very big selection. Maize is a thing I never use, and do not consider it suitable for confined runs, but dari and buckwheat are useful, and white peas come in well for a change. Let me advise amateurs to make their own mixtures if they want a variety, instead of buying what the corn chandlers generally call poultry mixture. This usually contains a lot of light grains of various kinds, the idea being that inferior corn is quite good enough for hens. As a rule, there is a good deal of maize

the side of meanness. Some give three meals a day, as much as the hens can eat each time, and even then they do not manage to get eggs. I made the same mistake myself, and only learned to give about the right quantity by keeping an eye on the birds. I soon found the three meals were making them too fat, and so I reduced the number to two. But that was not quite satisfactory, as the birds had to wait so long in between, and then they would eat more than was good for them. So now I give them three moderate feeds a day, the first consisting of house scraps, with a few grains of corn thrown among the litter to make them scratch; the second of vegetables, green and cooked, with a few bits of meat (except in summer time), and a few more grains of corn to set them scratching again; and the third all of grain, generally a small handful to each bird, unless the birds

have got their crops full already. The grain is scattered amongst the litter. Besides this the birds have a box of grit and oyster shell always handy.

I am asked to say what it costs to feed my fowls. As near as I can tell, counting for everything—grit, shell, meat, and corn at retail rates—it works out at about a penny a bird per week. Some do it for less with plenty of scraps and cheap grain, but they do not get such good results, and they cannot show such profits. With a stock varying from a dozen to twenty, and some going out and others coming in all the time, one cannot be accurate to a fraction in estimating the cost, but I am prepared to feed any fowls of a small kind suitable for confinement at a cost of a penny per bird each week, and I think if other people act upon my advice and take care of the scraps and do not waste food they can do the same. Some day I may tell the right kind of hens to keep, and how to manage them to make them pay.

THE AMATEUR'S GUIDE FOR JUNE.

TO many poultry-keepers this is one of the busiest months of the year. The show season opens, and the fancier is busy with his exhibition birds, and especially in getting his early chickens into condition. The breeder of table chickens and ducklings likewise reaps his principal harvest and finds his time fully occupied. But to the average amateur and small poultry-keeper the month of June is generally regarded as a quiet time. Breeding is finished, chickens are able to take care of themselves, and there is no longer any necessity to work at forced pressure, even if the amateur ever does that. But though we may rest upon our oars, as it were, there is plenty of regular work to be done, and one or two special duties need to be performed about the present time.

As regards laying hens, some people say that it does not pay to produce eggs in summer, when the price falls so ridiculously low. That is not correct. It is true that it would not pay to buy hens for laying just now, but if you have the hens you may as well produce the eggs, even though you can only get a halfpenny each for them. As a matter of fact, nearly every hen will lay just now, and do it upon much less food than she would require in winter. If you feed in the same manner as you did three or four months ago you will soon get the birds too fat, they will cost you more, and you will get a smaller return. So that, though eggs realise only about a third of the winter value, they should be produced at very nearly half the cost.

Those who have chickens should give them every opportunity to grow just now. There is not much difficulty on an open range, but when birds have to be closely confined the great thing is to provide all the necessaries they would find for themselves when running at liberty. Green food, animal food, and grit are the three chief necessities, and with these, a clean and airy house, and ground as fresh as you can find it or make it, young birds should grow.

Breeding-pens can be broken up at once. To the average amateur breaking up a breeding-pen consists solely in getting rid of the cock, whose room will now be more welcome than his company. If he is a valuable stock bird a small pen should be found for him, or he can be run with a flock of early cockerels. If of no particular value, however, he will make an acceptable dish when boiled for three or four hours. If the birds can be moved to a fresh run so that the old one may have a rest, so much the better; but I am afraid very few amateurs have enough room to do that.

Red mites delight in June weather, and we must continue to wage war upon them if we are ever to have the upper hand. Though the interior of the houses, and especially the perch sockets and cracks, may have been dressed with Penetras last month, we shall probably find, on examination, further signs of the pests, and by giving them another dose we may possibly get the better of the fight for a time. But it will be just as well to look round again in three weeks' time and repeat the dose if necessary.

Nest-boxes must also be looked after. They are the favourite resort of the active little hen flea, which, if allowed to multiply, soon presents as formidable a host as the red mite. If any material has remained in the nests for several weeks, clear it out and burn it, dress the boxes with Penetras or paraffin, and put a shovelful of earth in each box, together with some hay to line it.

This is the favourite time for preserving eggs in water-glass—a method that has been fully explained elsewhere. As I know that amateurs are very fond of this admirable process, I would like to point out the necessity of using only fresh eggs. The other day a lady told me she had put 200 eggs down. She had bought them, she said, from a grocer's, and the grocer had said they were the best kind for preserving, as they were not new laid! An egg for preserving *should* be new laid. If it is not fresh when it goes into preservation it certainly will not be fresh when it comes out; and if it contains any matter to decompose, such as a germ brought to life through being sat upon for some hours, the water-glass will not prevent the natural course of decomposition.

The appliances of the amateur are not numerous, but such as he possesses need to be taken good care of, and those used during the hatching season should be stored away for future use, and not left to rot out of doors. Incubators should be overhauled, tanks emptied, egg-drawers cleaned out, lamps emptied and cleaned, capsules and regulating apparatus stored away. Brooders should be similarly treated, and before being put away it will be a good plan if the woodwork is painted outside and dressed with lime-wash or some other insect destroyer inside. Coops and sitting-boxes should be served in the same way.

Be sure to have houses well ventilated, both for old and young stock. It is no hardship for fowls to sleep in open-fronted houses, and in summer time, at any rate, shutters should not be closed.

EDUCATION EXPERIMENTS

THE POULTRY SCHEME IN COUNTY LOUTH.

WE hear very good reports as to the success of the poultry scheme conducted under the supervision of Mrs. Costello in County Louth. The scheme was introduced in October, 1903, and although the development may not have been so rapid here as in other counties, yet the progress is apparent to-day. The rate of development depends to a very great extent on the county, for the inhabitants in some appear to be more easily influenced than is the case in others, and, from all we can learn, the fight in this instance to put poultry-keeping on a profitable basis has been up-hill and arduous, but now that once a good commencement has been made, we can look for more rapid advancement. During the first season there were only six premium egg stations, to-day there are sixteen selected egg distributing centres and, in addition, seventeen turkey and six goose stations. The stock birds at these centres are first-class in quality, and yet the eggs are retailed for hatching at 1s. per dozen ; hence the effect on the standard of poultry generally maintained must be considerable. Each station is visited three times during the season by official inspectors, and, therefore, they are kept up to a high state of efficiency. Perhaps the success which has been attained with turkeys is the most striking. The birds kept seven years ago were small in size, the cocks weighing from 12 to 15lb., and the hens from 6 to 8lb., but the present standard is 22lb. for cockerels and 28lb. for stags, and no premium is given for a bird under these weights. As the goose stations have only been at work for two years, it is too early to say what progress has been made with this class of stock.

It can be no light task to hold the position of instructress under the scheme of the department of Agriculture in Ireland, for during the past year Mrs. Costello has made 853 visits of inspection, has held fifty classes and given thirty-two lectures at different centres ; but the labour must be considerably easier and more pleasant when it can be definitely felt, as in the case of County Louth, that such satisfactory progress is being made.

THE NORTH OF SCOTLAND COLLEGE OF AGRICULTURE.

A POULTRY-KEEPING EXPERIMENT.

IN the early summer of 1908 Mr. James Murray, M.P. (East Aberdeenshire), became a convert to the cult of poultry-keeping, and, like a true convert, he set himself to demonstrate to others the special advantages of his own belief—namely, that fowls and profit go well together. In order to influence a larger number of the public, Mr. Murray decided to subsidise an experiment in utility poultry-keeping, and to this end he contributed the sum of £250 to the Aberdeen College of Agriculture.

The object "of the experiment agreed upon was to ascertain the extent to which poultry-keeping for egg-production could be profitably conducted by farmers, crofters, and cottars," and the breeds selected were the White Wyandotte and the White Leghorn.

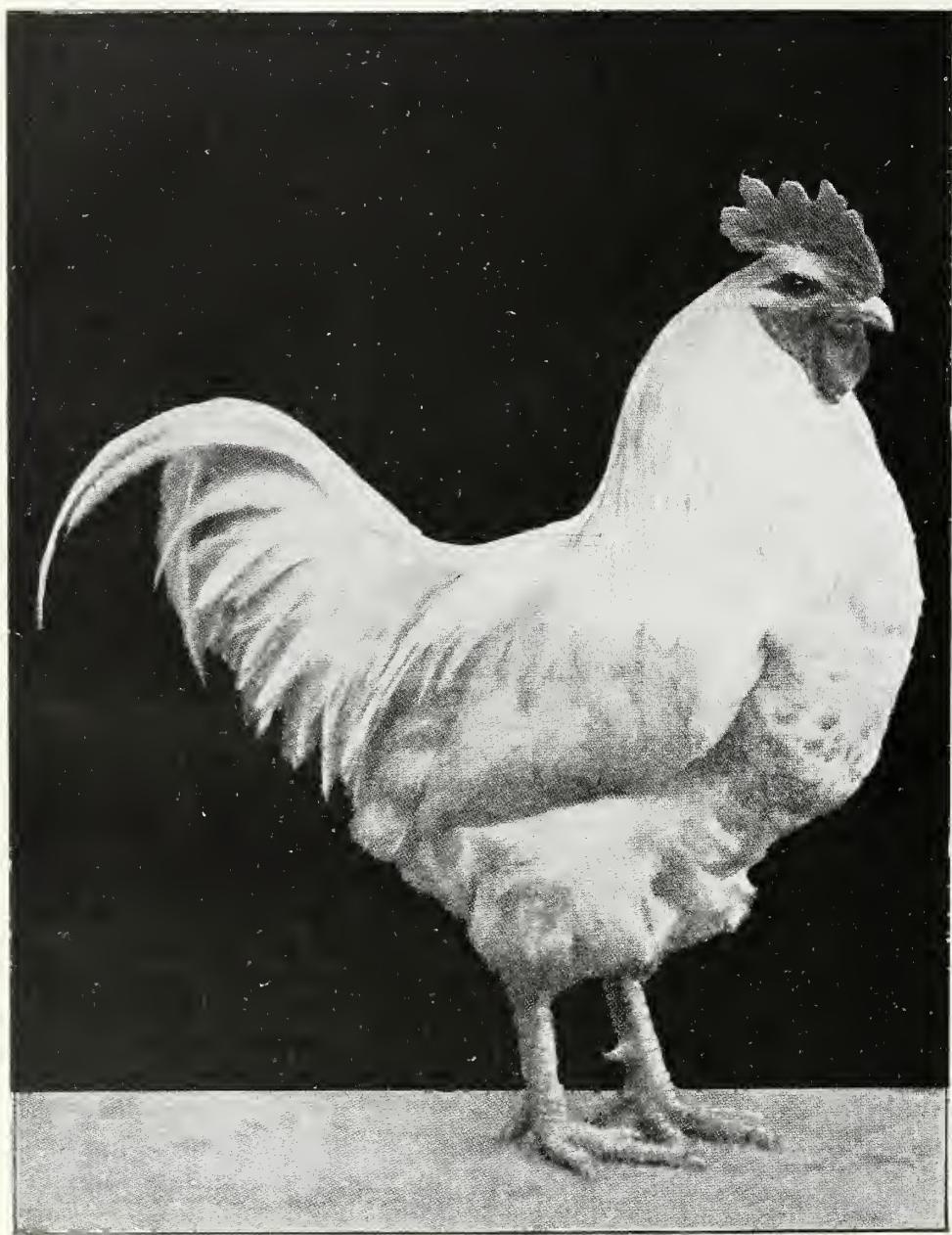
In all ten pens of birds, each pen consisting of nine pullets and a cockerel, were distributed, of which eight pens are being kept on the colony system and the remaining two in confinement. Mr. William Keys, of Brown Leghorn pullet fame, has control of the experiments, and, moreover, he is conducting a separate test by trap-nesting a number of fowls kept in confinement.

It is intended to continue the experiments for thirteen months, dating from November 1, 1908, for the reason that the pullets were all rather late hatched, and they did not commence to lay until December 1, this arrangement allowing for a test of twelve months from commencement of laying. The report for the first four months is just to hand, and the results are very satisfactory. The following figures give the total profit per pen to February 28, 1909 :

	£ s. d.
Pen 1.....	0 11 7½*
" 2.....	1 11 6
" 3.....	2 1 0½
" 4.....	1 19 4½
" 5.....	1 12 9
" 6.....	2 6 3¾
" 7.....	1 10 11½
" 8.....	0 7 0
" 9.....	0 18 0
" 10.....	1 2 10½

* Late in commencing to lay.

The report loses in value considerably because no information is given as to which breed constitutes each given pen, and, moreover, it is not stated which birds are being kept in confinement and which are given their liberty. We hope these omissions will be remedied in the next report.



A NASSAU COCKEREL

THE NASSAU TABLE BREED.

THESE birds are white fleshed, with white legs, and have medium-sized single combs. The breast is broad, long, and deep, and carries a large amount of flesh. At three months old these birds have been known to scale from $2\frac{3}{4}$ lb. to $3\frac{1}{2}$ lb., and after fattening at four to five months old they make first-class table birds. The hens are winter layers and produce from 120 to 140 eggs per year. This is the breed selected by the Wiesbaden Landwirtschaftskammer for the egg stations.

THE OTTAWA REPORT.

M R. A. G. GILBERT'S annual reports of the poultry work at the Ottawa Experiment Station are always interesting, containing records which cannot fail to be of practical value to farmers and others in the Dominion. That for 1908, just to hand, is no exception to the rule. It embodies experiments dealing (1) with the open or cotton front form of housing, (2) comparisons between natural and artificial hatching and rearing, (3) warm v. unheated houses in relation to egg-production, (4) results of breeding from good and poor egg-laying strains of fowls, and (5) white diarrhoea in chickens.

Open Front Housing.

In dealing with this experiment Mr. Gilbert says very wisely :

Emphasis is to be laid on the result (profitable egg yield), for no matter how up to date the pattern of the house or cheap its construction may be, if the fowls which tenant it do not lay a paying number of eggs during the winter season—the period of best prices—such pattern of house will not answer. Are these requirements found in the cotton front house of latest design ?

The results are all in favour of the house named, even in a climate such as that of Canada, when the temperature in the house fell as low as 22deg. below zero. For details readers are referred to the report itself, but the summary of the observations may be given :

During the coldest nights of winter none of the combs of the birds were frozen. This was doubtless owing to the protection of the cotton frame, which was put down in front of the birds when the nights were cold.

The birds were in good health during the winter. Their condition in springtime was excellent.

The fertility of their eggs in spring was convincing proof of the good health of the birds. On being tested, only eight out of seventy eggs, which were put in an incubator on March 26, were found to be unfertilised.

The number of eggs laid during the five winter months was fairly satisfactory considering the low temperatures frequently experienced and the non-stimulating but wholesome rations given.

The 20 Buff Orpington pullets in this test laid as follows : November, 34 ; December, 125 ; January, 230 ; February, 160 ; March, 222—or a total of 771, and they

were late hatched, between April 25 and March 28, 1907.

Breeding from Good v. Poor Layers.

In this experiment four of the best and three of the worst layers were selected from a pen of 14 White Leghorn pullets and the results carefully observed, equal treatment being given and the records of their progeny in respect to egg-production kept. The deductions arrived at are :

Results show very plainly the advisability—in building up prolific egg strains of fowls—of breeding from none but birds of good egg-laying record.

Selection of a male from good egg-laying parentage is necessary to mate with hens of good egg-laying characteristics if satisfactory progress is to be made.

Deterioration in constitutional vitality, as well as number of eggs laid, followed the breeding from one generation to another of poor egg-layers.

The falling-off in the number of eggs recorded (in two cases) is attributed to the mating with the parent hens, from which the pullet descended, of a male bird of unknown pedigree.

THREE SERIES OF FEEDING EXPERIMENTS.

TO determine the relative efficiency of the constituents grouped as total protein in the grains and animal products, a number of feeding experiments have recently been carried out at the Experiment Station,

Geneva, N.Y. and the results are published in the twenty-sixth annual report of the New York Agricultural Experiment Station. Each series has been carried out in a thorough manner, and the results are interesting. The experiments may be summarised as follows :

Of rations which contained practically the same proportions of the groups of constituents ordinarily considered, those wholly and those very largely of vegetable origin proved much inferior for growing chicks to other rations, higher in ash content, containing animal food. When the deficiency of mineral matter was made good by the addition of bone ash, vegetable food rations for chicks equalled or somewhat surpassed in efficiency corresponding rations in which three-eighths of the protein was derived from animal food.

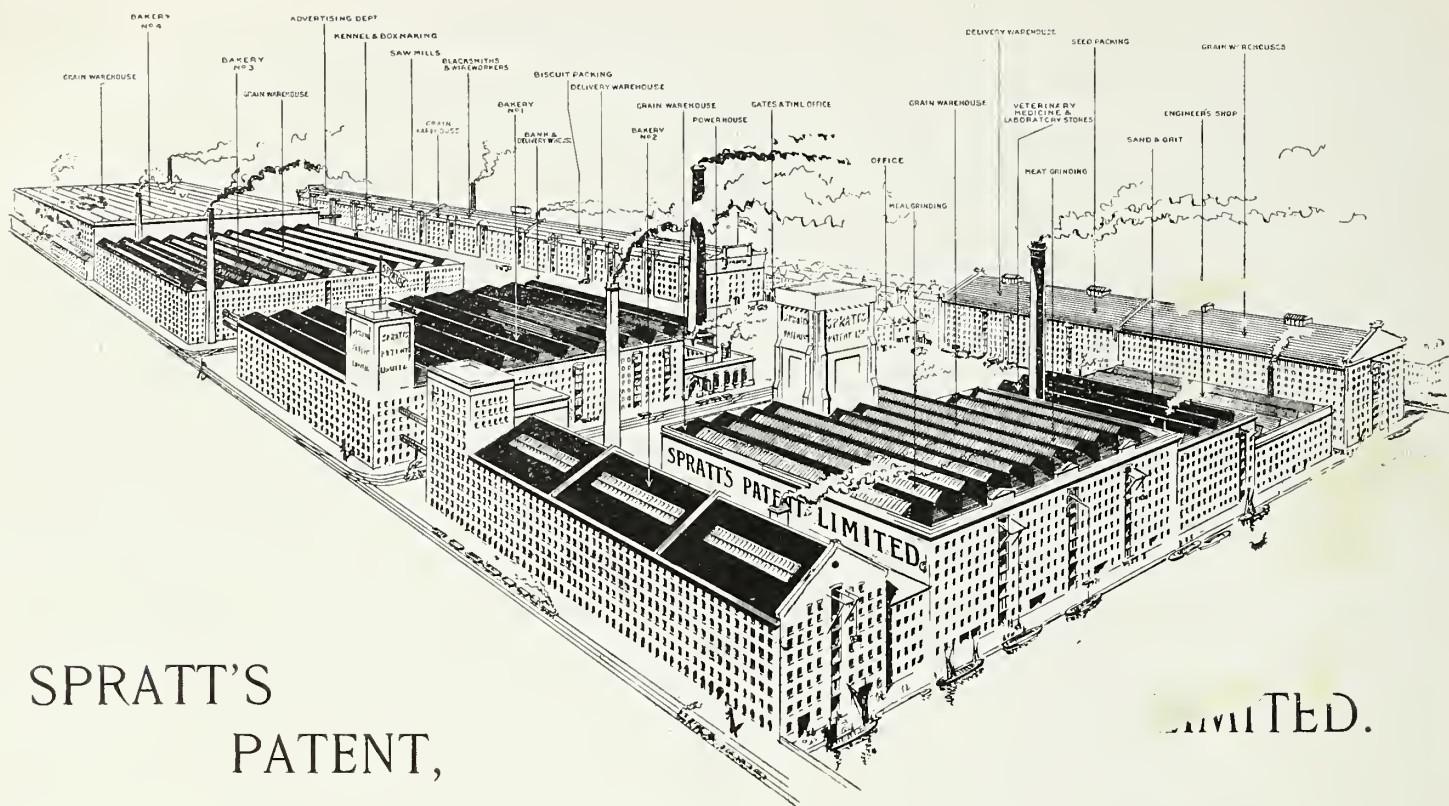
For laying hens rations containing animal food proved superior to others in which all or most of the organic matter was derived from vegetable sources. The vegetable food ration supplemented by bone ash proved equally efficient for several months, but egg-production held up longer under the

animal food ration, and the eggs were better for hatching.

Rations containing animal food proved very much superior for ducklings to rations wholly or largely of vegetable origin, which, according to the ordinary methods of estimation, had practically the same nutritive value. A ration of vegetable food supplemented by bone ash proved inferior to another ration of similar "composition" in which three-eighths of the protein came from animal food. The ash supplemented ration seemed palatable and equally healthful, but failed to induce a rapid growth, though permitting ultimate attainment of full size.



A NASSAU PULLET.



SPRATT'S PATENT,

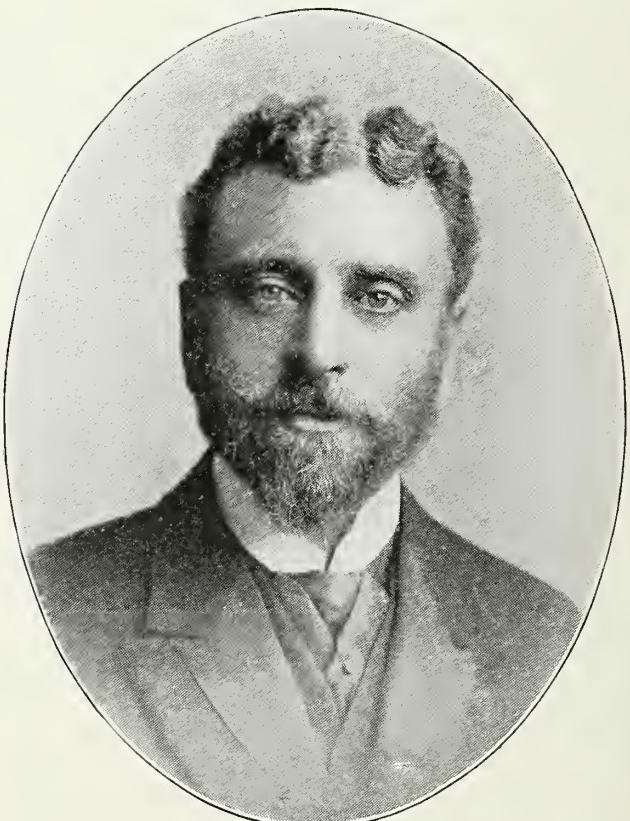
LIMITED.

NO better idea of the vastness of the business done by the famous firm of Spratt's Patent, Limited, could be gained than from the plan of the factories at Poplar, which we reproduce above. The buildings cover a very large area by the side of the River Lea Canal and are within easy distance of Limehouse Basin, whence come the barges and ships that bring the grain and flour, which is converted into manufactured goods. A glance at their many-windowed walls and towering chimneys gives the impression of an industrial town rather than an industrial firm. It seems almost inconceivable that the concern, of the productive capacity of which this factory is the most eloquent witness, was started less than half a century ago in a small shop in Holborn ; that the many hundreds of articles now manufactured at Poplar emanate from the single scheme of the late Mr. James Spratt for the production of a nutritious dog biscuit ; and that the small shop aforesaid has developed into sumptuous offices and showrooms in Fenchurch-street, others (for the Hearson Incubator) in Regent-street, branch offices and works in Canada and the States, Germany and Paris, even a sanatorium for dogs and birds at Beddington, Surrey. Yet so it is.

The patent for the famous biscuit was taken out by Mr. James Spratt in 1862. Eight years later the business was sold to Mr. Wylam and Partners. So rapid was its growth that in 1885 it was converted into a limited liability company. Since then it has further increased by leaps and bounds, thanks very largely to the

vigorous initiative and management of Mr. Stephen Wingrove, who has been connected with the firm almost from the first. Such, in brief, is the history of Spratt's Patent, Limited.

But neither the plan of the factory nor the outline of history suggests what is really the



MR. STEPHEN WINGROVE.

wonder of "Spratt's"—the infinite variety of the articles they produce. Practically everything that a dog or cat can desire in the way of food, housing, and other comforts is manufactured here; while in regard to domestic bird life the requirements of every class of stock from fowls to canaries are sedulously studied and catered for. Something like five hundred different articles for dogs, cats, poultry, game, and cage birds are turned out of the factory daily. For the accommodation of this colossal output the buildings contain over forty-five floors. The staff required to cope with this production might be dignified by the name of an army; our illustration showing the hands leaving the factory

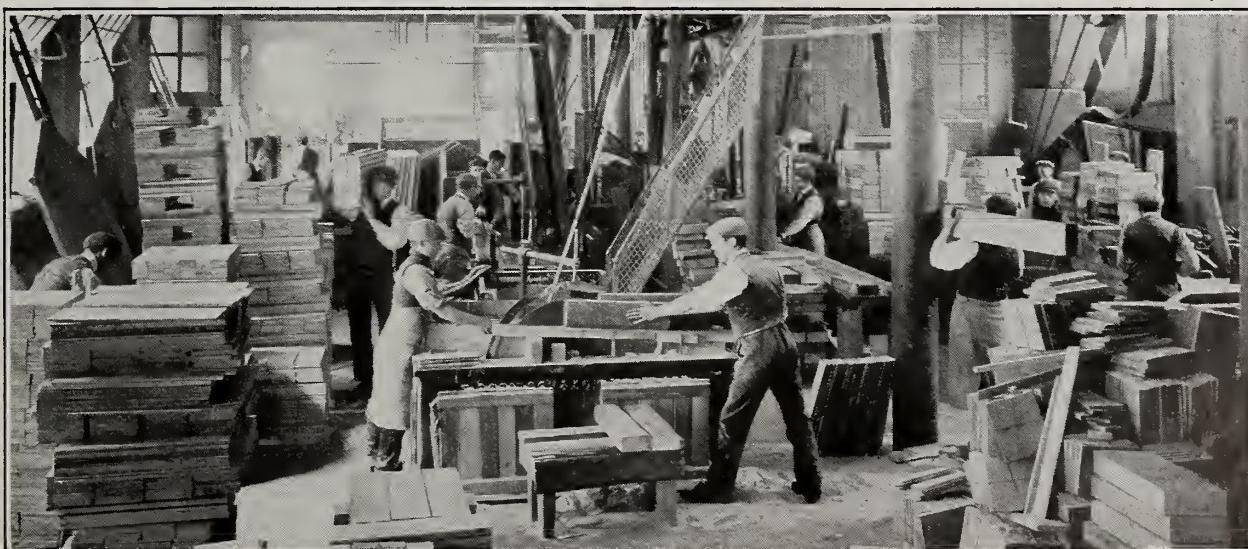
at the close of a day's work, gives a less than adequate idea of the number employed. Besides these, of course, there are the clerical workers, of whose numerical strength some notion may be gained at the offices in Fenchurch-street, where expert organisation of the highest quality is obvious in the compact arrangement of the premises and the distribution of a great number of employees over the necessarily limited space that a City establishment must have. And as with the staff, so with the machinery that performs the raising and lowering of material, the mixing of foods, the rolling out and stamping of biscuit dough, and its baking, at Poplar; as also the ingenious machines, large and small, that turn out the hundreds of articles that have become a necessity to all those who keep and house pets—canine, feathered, or otherwise. The writer was much struck with the order and neatness of the girls' department. These workers earn good money, and every care is taken as to the hygienic conditions of their work-room.

The section of the business that mostly concerns this paper is, of course, the making of



A CORNER OF ONE OF THE GRAIN STORES.

poultry foods and appliances. In regard to the latter, one need quote but a single fact from history to show the scale upon which Messrs. Spratt's can produce, if necessary. In November, 1904, they supplied the National Poultry Show



WHERE THE APPLIANCES ARE MADE.

June, 1909.

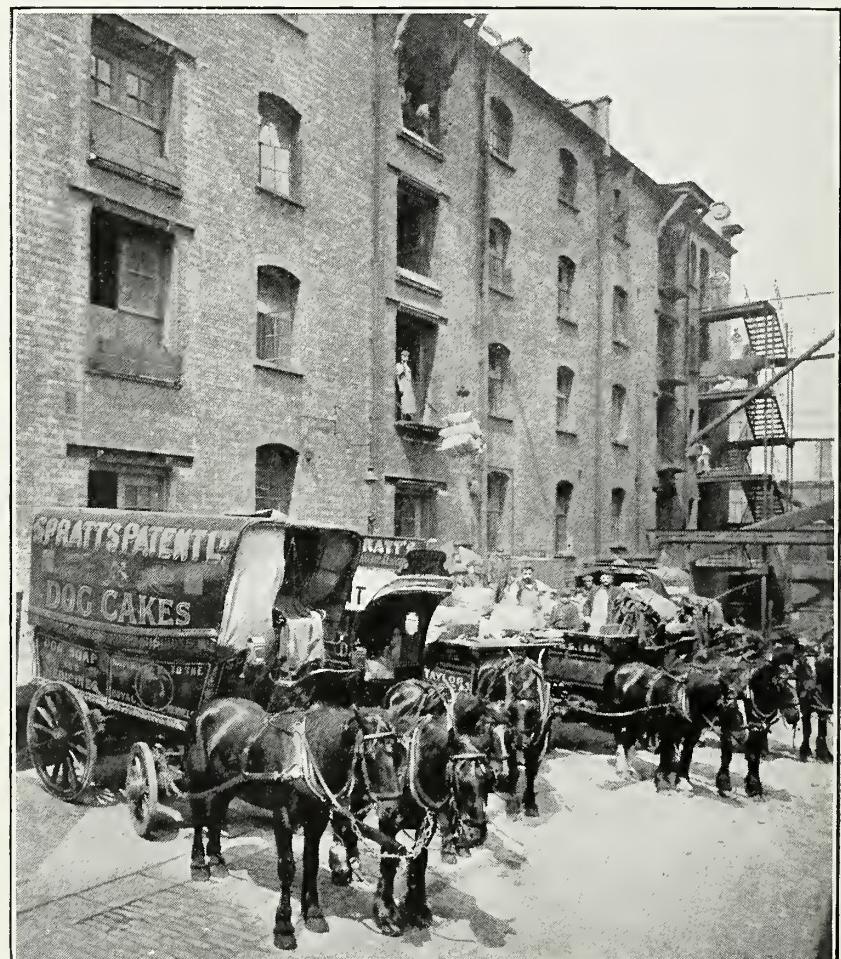


THE PACKING ROOM.

at the Crystal Palace and the International at the Alexandra Palace, both events coming at the same time, with the huge total of 12,000 pens. To-day, thanks to their hiring-out system, numberless poultry shows throughout the country are provided with pens at a cost that is insignificant compared with what would have to be incurred if it were necessary to purchase these articles. Every sort of facility, moreover, is afforded by them for the poultry-keeper who desires to send his birds abroad for exhibition or breeding purposes. Out of the carpenters' and joiners' shops come houses and coops in the same unwearying profusion as dog-kennels. It is, perhaps, unnecessary to remind our readers that Spratt's Patent, Limited, are now the sole agents for the Hearson Champion Incubator, the original machine with the thermostatic capsule for regulating the temperature of the egg-drawer.

The meals and other foods manufactured by the firm have been before the public for many years past; but one or two rather startling developments in this direction within a very recent period may have special attention drawn to them. At the last Dairy Show, for instance, a good deal of

discussion and speculation was aroused in poultry circles by the new meal "Laymor," which has since established itself as a reliable preparation obtainable at a moderate price. Spratt's Patent Poultry Meal is another food that has stood the test of time; and "Chikko," which is one



LOADING OUTSIDE THE FACTORY.

of the firm's very latest productions, is a blend of grain and seed, specially designed as an evening meal for chickens. "Maxco" is a tonic food for delicate birds or for those which go off colour, say, on the eve of a show ; and, as an adjunct to poultry meal for the morning feed, "Cris-sel," which is a granulated form of prairie meat, and must be steamed or boiled, has been well spoken of. Other preparations in the department of food and medicine are too numerous to deal with specifically, and it must merely be said that they cover the entire range of poultry requirements. The high quality of the material employed in the making of dog biscuits and the scrupulous cleanliness observed in their manufacture have often been compared with what one expects to find in a first-class factory for food for human consumption ;

and, as a matter of fact, many millions of biscuits produced at the Poplar works are not for dogs but for the British soldier or sailor. Precisely the same degree of care and cleanliness is observed in the preparation of the poultry food ;

the ingredients, chosen and blended under the advice of experts, are in every case of the best quality, and are prepared in surroundings that should satisfy the most fastidious fowl that ever breathed as to the goodness of what he is eating.



A DRYING FLOOR FOR BISCUITS.

At any rate, if the opinion of the fowls must, on that point, remain unheard, that of many of their owners is already suggested by the gigantic, well-equipped factory that has grown out of the demand for its products.



THE END OF A DAY AT THE FACTORY.



The Duckling Trade.

Both the supply and demand for Aylesbury ducklings have been good, the birds being of excellent quality in every respect. Producers of early ducklings have less to fear from foreign competition than anyone connected with the poultry industry. In this country their production has become a fine art, and English duckers are past-masters at the work. Although we receive considerable supplies of ducklings from abroad, they are inferior in quality to home produce. The French and the Belgians are the only peoples who can equal us in this direction, but as they can find as remunerative markets at home it does not pay them to send to England. The ducklings we receive from America and Australia are but a poor substitute for our own, refrigeration having much impaired their flavour and appearance. The appearance of a duckling is an important factor, governing to a very great extent its value. The breed of bird most in favour on the markets is the Aylesbury, the colour of its flesh being excellent, exceeding in its delicacy of tint that of any other variety. Its flavour also is superior to that of other varieties kept in this country. Although the duckling trade is a seasonal one, and top prices are realised during the period from March to May, there is a fair demand for them throughout the summer at remunerative prices. To realise top prices ducklings must be quickly and well grown to ensure tenderness of flesh and size. Great care should be taken in killing and preparing for the market, avoiding any abrasions of the skin whilst plucking as well as in packing. Appearance, as mentioned above, is an important factor in determining value, for it is by the appearance and feel of the flesh that its quality is judged.

English Chicken Trade.

In spite of the fact that trade has been somewhat slow owing to the London season not being in its full swing yet, the available supplies of prime spring chickens have been inadequate. Contrary to expectations ex-

pressed on many sides, the large stock of cold-stored poultry, which had been accumulated on the markets in view of the probability of a shortage in home supplies, has had no appreciable effect on the value of prime English produce. Young birds, scaling from 2½lb. to 3lb., have found ready sale at from 3s. 6d. to 4s. 6d. each, according to quality. It is much to be regretted that home supplies are not more readily forthcoming, especially in the early parts of the spring, when the most remunerative prices are to be realised.

The Egg Trade.

As with the chicken trade, supplies of eggs have been short of demand. This to a very large extent is due to the fact that producers and the various co-operative poultry societies throughout the country have taken advantage of the cheapness of eggs to preserve larger quantities than was the case previously. The wisdom of adopting this course is undoubted, for not only does it relieve the market of a large surplus and thus help to maintain a higher average of value at the present time, but also they should realise good values during the period of shortage. From reports to hand we learn that the Danes are preserving larger quantities than usual this season. This fact, coupled with the shortage of supplies from South-Eastern Europe, has materially helped to maintain a higher average value for foreign eggs than has ever been known before.

Foreign Poultry.

There is inclined to be a surfeit of foreign poultry on the markets at the present time. Especially is this the case with respect to Russian produce, of which very large quantities are to be seen. The imports from America during April are the largest recorded for the past three years, France sending under one-half the quantities recorded for the corresponding periods of 1907 and 1908. The total increase in value of the poultry imports during April last as compared with April, 1907, amounts to £27,185.

TABLE OF PRICES REALISED FOR HOME, COLONIAL, AND FOREIGN POULTRY,
GAME, AND EGGS DURING MAY, 1909.

ENGLISH POULTRY—LONDON MARKETS.					FOREIGN POULTRY—LONDON MARKETS.				
DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.	PRICES REALISED DURING THE MONTH.				
	Each.	Each.	Each.	Each.	Chickens. Each.	Ducks. Each.	Ducklings. Each.	Geese. Per lb.	Turkeys. Per lb.
Surrey Chickens	3/9 to 5/6	3/9 to 5/6	4/0 to 5/6	3/9 to 5/6	1/6 to 2/6	2/9 to 3/3	0/5 to 0/5½	0/8 to 0/9	—
Sussex " "	3/9 " 5/6	3/9 " 5/6	4/0 " 5/6	3/9 " 5/6	1/0 per lb.	1/0 per lb.	—	—	0/9 to 0/11
Yorkshire "	3/0 " 4/6	3/3 " 4/6	4/0 " 4/6	2/9 " 4/6	1/6	1/0	—	—	—
Boston "	2/6 " 3/6	3/0 " 3/6	3/0 " 4/6	3/0 " 4/6	2/6 to 3/6	2/6 to 3/6	—	—	0/8 to 0/10
Essex "	2/6 " 3/6	3/0 " 3/6	4/0 " 4/6	3/6 " 4/6	1/6 " 2/9	1/9 " 2/9	—	—	—
Capon " "	—	—	—	—	—	—	—	—	—
Irish Chickens	2/6 " 3/9	2/9 " 3/9	4/0 " 4/0	3/0 " 4/0	2/9	2/6 to 3/6	—	—	—
Live Hens.....	1/9 " 2/3	2/3 " 2/3	2/9 " 2/9	2/3 " 3/3	2/3	2/3	—	—	—
Aylesbury Ducklings.....	4/0 " 7/0	5/0 " 7/0	5/0 " 7/0	5/0 " 7/0	4/0	4/0	—	—	—
Ducks	3/6 " 5/6	4/0 " 5/6	4/0 " 5/6	4/0 " 5/6	3/6	3/6	—	—	—
Spring Chickens	2/6 " 4/6	2/6 " 4/6	4/0 " 4/0	3/0 " 4/0	3/0	3/0	—	—	—
Guinea Fowls	2/9 " 3/0	3/0 " 3/0	4/0 " 4/0	3/0 " 4/0	3/0	3/0	—	—	—
Poussins	1/0 " 2/0	1/4 " 2/0	1/8 " 2/0	1/6 " 1/9	1/6	1/6	—	—	—
ENGLISH GAME—LONDON MARKETS.					FOREIGN GAME. LONDON MARKETS.				
DESCRIPTION.	Each.	Each.	Each.	Each.	Price Each During Month.	Price Each During Month.	Price Each During Month.	Price Each During Month.	Price Each During Month.
Grouse	— to —	— to —	— to —	— to —	2/0 to 2/9	2/0 to 2/9	2/0 to 2/9	2/0 to 2/9	2/0 to 2/9
Partridges.....	—	—	—	—	1/9 " 2/6	1/9 " 2/6	1/9 " 2/6	1/9 " 2/6	1/9 " 2/6
Pheasants.....	—	—	—	—	1/0 " 1/2	1/3 " 1/9	1/0 " 1/2	1/0 " 1/2	1/0 " 1/2
Black Game	—	—	—	—	1/0 " 2/0	1/9 " 2/0	1/0 " 2/0	1/0 " 2/0	1/0 " 2/0
Hares	—	—	—	—	2/6 " 2/9	2/6 " 2/9	2/6 " 2/9	2/6 " 2/9	2/6 " 2/9
Rabbits, Tame	1/0 " 2/0	1/3 " 2/6	1/3 " 2/0	1/3 " 2/0	0/6 " 0/9	0/6 " 0/9	0/6 " 0/9	0/6 " 0/9	0/6 " 0/9
" Wild	—	—	—	—	—	—	—	—	—
Pigeons, Tame	—	—	—	—	—	—	—	—	—
" Wild	—	—	—	—	—	—	—	—	—
Wild Duck	2/3 " 2/6	2/3 " 2/9	2/3 " 2/9	2/3 " 2/9	—	—	—	—	—
Woodcock	—	—	—	—	—	—	—	—	—
Snipe	—	—	—	—	—	—	—	—	—
Plover	—	—	—	—	—	—	—	—	—
IRISH EGGS.					FOREIGN EGGS.				
DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.	1st Week.	2nd Week.	3rd Week.	4th Week.	1st Week.
Irish Eggs	7/10 to 7/6	7/9 to 7/6	7/9 to 7/3	7/6 to 7/2	Per 120.	Per 120.	Per 120.	Per 120.	Per 120.
ENGLISH EGGS.					FOREIGN EGGS.				
MARKETS.	Per 120.	Per 120.	Per 120.	Per 120.	DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.
LONDON	8/4 to 9/2	8/4 to 9/6	8/6 to 9/6	8/9 to 9/6	French	8/9 to 8/3	9/0 to 8/3	9/0 to 8/3	9/0 to 8/3
Provinces.	Eggs per 1/-	Eggs per 1/-	Eggs per 1/-	Eggs per 1/-	Danish	8/3 " 9/6	8/9 " 7/9	9/0 " 7/6	9/0 " 7/6
MANCHESTER	14 to 15	14 to 16	14 to 16	14 to 16	Italian	8/0 " 8/6	8/6 " 7/9	8/9 " 7/9	8/9 " 7/9
BRISTOL	9/2 to 10/0	9/2 to 10/0	9/2 to 10/0	9/2 to 10/0	Austrian	8/6 " 7/3	7/3 " 6/3	8/3 " 7/3	8/0 " 7/3
	per doz.	per doz.	per doz.	per doz.	Russian	7/0 " 7/3	7/0 " 7/3	6/9 " 7/0	6/9 " 7/0
					Australians	—	—	—	—
					Canadian	—	—	—	—
					Totals	1,336,645	£430,165	1,336,645	£430,165

DECLARED VALUES.		POULTRY.	
Game.	£7,018	Poultry.	£17,748
Russia	—	Austria-Hungary	737
France	—	United States of America	3,117
Other Countries	—	Other Countries	43,469
Totals	£24,180	Totals	£69,869

COUNTRIES OF ORIGIN.		IMENTS OF POULTRY AND GAME.	
MONTH ENDING APRIL 30, '09.		MONTH ENDING APRIL 30, '09.	
Russia	17,162	Game.	£17,748
Austria-Hungary	—	Poultry.	737
France	—	United States of America	3,117
Other Countries	—	Other Countries	43,469
Totals	£24,180	Totals	£69,869

COUNTRIES OF ORIGIN.		QUANTITIES IN GR. HUND.	
MONTH ENDING APRIL 30, '09.		DECLARED VALUES.	
Russia	36,216	Game	£14,187
Denmark	271,230	Poultry	117,306
Germany	63,932	United States of America	24,594
Italy	147,048	Other Countries	61,294
France	162,268	Austria-Hungary	75,977
Canada	—	Other Countries	—
Austria-Hungary	181,244	Other Countries	69,374
Other Countries	174,707	Totals	67,433
Totals	—	Totals	—

ANSWERS TO CORRESPONDENTS.

The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered if possible in the issue following their receipt. The desire is to help those who are in any difficulty regarding the management of their poultry, and accordingly no charge for answering such Queries is made. Unless stated otherwise, Queries are answered by

F. W. PARTON,

Lecturer in Aviculture, The University, Leeds.

Feeding Goslings.

"I have been a reader of the ILLUSTRATED POULTRY RECORD from the first number, and have found it very helpful indeed. I am sorry, however, you have so far given no practical attention to geese, as I have found them very profitable. Would you mind telling me what are the best foods to give to young goslings during the first month of their lives? I have been giving them egg and biscuit meal during the first week, and then maize meal during the remainder of the first month, but some of my neighbours' geese who are not fed in this way seem to grow up considerably quicker. I shall be obliged for any advice you can give me."—F. N. D. (Dundalk.)

It is not necessary to give young goslings eggs and breadcrumbs. They may be fed from the first on oatmeal and wheat, the latter being scalded and dried up with barley meal. This may be varied by boiled rice and breadcrumbs or middlings mixed with boiled potatoes. The addition of green food of one sort or another is absolutely necessary from the very first. The greens—onions, cabbages, potatoes, or, in fact, anything obtainable—should be boiled and finely minced and added to their morning mash. Goslings are not difficult birds to feed, and after the first fortnight they can almost "fend" for themselves; requiring only a feed of soft food in the morning, with a few handfuls of grain in the early afternoon and again at night.

Guinea Chicks.

"I shall be obliged to you if you will kindly let me know in the ILLUSTRATED POULTRY RECORD some particulars concerning Guinea Fowls. I am anxious to keep these interesting birds, but I know very little about them. I have two acres of land, but I am under the impression that they must be given a large amount of room. Is this so? What are the stock birds fed on, and are they housed in the ordinary way?"—M. S. (Stafford.)

Guinea Fowls are not suitable birds for confined runs, as they are naturally of a roving disposition. At the same time, upon two acres of land a moderately sized flock could be maintained. Guinea Fowls may be reared at a good profit, for, if kept on a farm, or if they have the run of meadow land, they do not require much feeding, for, being such wonderful foragers, they obtain much of their own food. The demand for these birds for table purposes is limited, and the season is a very short one. The hens produce between 60 and 70 eggs up to about August; the eggs are small, but very rich in colour and flavour and are in request in the West-End of London. Stock birds require nothing special in the way of feeding, and may be fed on exactly the same foods as other poultry. They prefer roosting in trees,

and laying away; in fact, they incline to all wild propensities, but if the young are hatched and brooded by hens they soon become domesticated, and can easily be broken off their wild habits.

Natural versus Artificial Rearing.

"Which is the best method of hatching, artificial or natural? I only go in for poultry on a comparatively small scale, usually having a stock of about two or three dozen birds. I have a small holding of half an acre, and I should like to know whether under these conditions an incubator is necessary. I am anxious to have a supply of chickens early in the season, and I have been told that for this purpose an incubator is necessary. Your kind assistance will much oblige."—P. L. M. (Liverpool.)

We cannot say that one method of hatching is better than the other. As to which system is adopted, it must depend upon the extent of your operations and the time of year when you desire chickens. It is somewhat difficult to advise you, as only keeping between two and three dozen fowls it seems scarcely worth going to the expense of an incubator; but, on the other hand, as you are anxious for a supply of early chickens, an incubator is certainly helpful in this direction, if not absolutely necessary.

The Orpington.

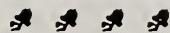
"Will you kindly tell me which is the best variety of Orpington to keep? I am anxious to keep a breed that combines good production and table qualities, and I have been recommended to try the Orpington. Is this good advice, and, if so, which of the many breeds would you recommend me to go in for?"—G. E. M. (Glasgow.)

As you want a general purpose fowl, the advice given you to keep Orpingtons is excellent, and of the many sub-varieties of this breed we would recommend the Buff or White.

A Living from Poultry,

"Can you tell me how much land it is necessary to have in order to make a living out of poultry? I am at present engaged in quite another branch of business, but, as I have been in indifferent health, I am thinking of giving it up and going in for poultry. As I know very little about the subject I shall be obliged if you will kindly let me know the amount of land necessary to start with, and if you could also give me some rough idea as to the capital necessary."—S. H. D. (Clapton.)

It is difficult to advise you without knowing what branch of poultry you think of taking up, and also what you regard as "a living," since what would be a luxurious income for one person might mean penury to another. If you care to submit to us a general plan of how you suggest starting, it will give us the greatest pleasure to

THE ILLUSTRATED POULTRY RECORD**£50 Prize Competition £50****OPEN TO THE WORLD.****PRIZES OFFERED.**

In order to encourage the Poultry Industry, and at the same time to make widely known THE ILLUSTRATED POULTRY RECORD by extending its readership, the Proprietors offer one of the following Prizes :

- 1.—A Six Months' Scholarship at the College Poultry Farm, Theale, including all Tuition Fees and Board and Residence, or training at any recognised Institute in any part of the World. Value £50.
- 2.—A Tour to the leading Poultry Centres of Europe or America. Value £50. Or
- 3.—Poultry Stock or Appliances to the Value of £50.

HOW TO WIN THE PRIZE.

The Person who, during the twelve months ending September 30, 1909, secures the largest number of Annual Subscribers to THE ILLUSTRATED POULTRY RECORD will, subject to the regulations, be awarded one of the above Prizes, of the value of £50, as he or she may select.

N.B.—Each Competitor who secures 10 or more Annual Subscribers will receive a copy of "The Illustrated Poultry Record" for one year Free of Charge.

REGULATIONS.

1. The name of the Competitor is to be sent to the office for Registration.
2. The Competitor must forward the names of Subscribers obtained to the office as received. The Subscription will commence with the next issue.
3. With each Subscriber's name, 6s. must be enclosed when the paper is to be delivered through a Newsagent, or 8s. when the paper is to be forwarded by post. All Colonial and Foreign orders must be accompanied by 8s. (except Canada, in which case 7s. is the amount), as arrangements cannot be made for delivery abroad by Newsagents.
4. If the Subscriber prefers to pay his Newsagent the Annual Subscription, the Newsagent's receipt for payment of a yearly order will be accepted.
5. If two or more persons secure the same number of Annual Subscribers—which is very unlikely—the Editor reserves the right of extending the period of Competition for one month.
6. If the successful Competitor wishes to do so, he or she may nominate another person for the Prize, subject to the approval of the Editor.
7. Before the award is announced, the Competitors' Lists will be checked by Messrs. SMITH & LONGCROFT, Chartered Accountants, 41, Bishopsgate-street Within, London, E.C.
8. Should the winner live outside the United Kingdom, and elect to take No. 1, he or she would pay travelling expenses to England, or take a shorter course, subject to the approval of the Editor.
9. The latest date for receiving Subscriptions will be as follows :

United Kingdom.....	Sept. 30
The Continent, Canada, and U.S.A....	Oct. 10
The Colonies, &c.....	Oct. 20

 and the result will be announced in the November issue.
10. The Editor, Sectional Editors, and members of the Office Staff and Newsagents are prohibited from competing.
11. The Editor's decision must in all cases be accepted as final, and all Competitors must enter on this understanding.

assist you in every way possible. In the meantime, we would recommend you to read "Poultry Farming as a Business," by Edward Brown, F.L.S., in the May number of the ILLUSTRATED POULTRY RECORD.

The Scotch Grey.

"I have been offered a pen of Scotch Greys by a friend at a very low price, and I should like to know whether this is a good breed. I know nothing about them, and shall be grateful for any information. Are they good layers, hardy, and will they stand confinement?"—S. L. H. (Penrith.)

Scotch Greys are very good layers. They are classified with the non-sitters, although they occasionally show a desire to "sit"; but, on the whole, it is more of a laying than a general purpose variety. The birds are better in table qualities than any other non-sitter. They have white flesh, white or mottled legs, grey in plumage, very hardy, and will thrive on a heavy soil, although a medium soil is preferable, especially if kept principally for their table qualities. They will do exceedingly well when kept in confined runs.

Petits Poussins.

"What are Petits Poussins? I have read somewhere they are very profitable indeed, and that it is not a difficult market to supply. For any help that you can give me I shall be thankful."—S. B. R. (Exeter.)

Petits Poussins are small chickens about four or five weeks old, and, as may readily be imagined, to be ready at such an early age their food during this period must be of a very forcing nature. They are a luxury mostly indulged in by the wealthy classes, and the time when these birds are in season is during April, May, and June; at other times of the year there is no demand. The markets in this country are principally supplied with Petits Poussins from France and Belgium. For the man who specially lays himself out to supply this trade there is a fair remuneration, but nothing extravagant. When it is remembered that the food needed by the birds must be good and plentiful, and at four or five weeks the price rarely reaches more than 1s. 6d. or 1s. 9d. each, it will thus be realised that there are many more profitable branches of poultry-keeping.

Infertile Eggs.

"Quite half my eggs this spring are coming infertile, and I have not nearly so many chickens as I wanted. I keep about a dozen hens to every cock; they have a large field to run about in, and I feed them three times a day. I have never had infertile eggs before, and I should like to know whether you can suggest a cause. The cocks are mostly three-year-old birds mated with two-year-old hens, but a few are only cockerels, and yet the results are no better."—M. B. L. (Cork.)

Yours is quite a common complaint this season. The severe weather early in the year doubtless was not conducive to fertility; at the same time, the weather was not entirely responsible in your case—your modus operandi is distinctly wrong. In the first place, two feeds a day is quite sufficient for fowls under the favourable conditions you mention—namely, a large field to run in. You do not state what breeds you keep—the

breeds vary considerably in the number of hens the cockerels can serve—but we should think that twelve hens to each male is too many, especially for three-year-old cocks. Your male birds are very much too old. One-year-old cockerels should be run with your two-year-old hens. The advantage of this mating will be found in the larger proportion of fertile eggs and vigour of the chickens.

Water for Ducklings.

"I am expecting a brood of ducklings off in a few days. Should I let them into water or not? Someone has told me they must have swimming water to be healthy."—F. B. (Accrington.)

Swimming water is not necessary to keep ducklings in good health. For full particulars see answer to the question on Rearing Ducklings asked by H. A. S. (Cork) in the May number.

Temperature of Incubator Cellar.

"I should like to know, if it is necessary to have a temperature of 45deg. for incubators, how you are to have that temperature in the winter months without a fire. A cellar is generally below 40deg."—T. S. R. (Colchester.)

It is not absolutely necessary to keep the temperature of the incubator room at 45deg. It is difficult, unless the room has been specially constructed for the purpose, just to maintain the right degree. The incubator should, however, be in a room that is not easily affected by changes in the weather. A sweet-smelling, well-ventilated cellar does not fluctuate much in temperature, and has the further advantage of being less subject to sudden shocks or jarring noises.

Short Replies.

W. E. S. (Cricklewood) : Yes.

M. L. (Sandown, Isle of Wight) : Buff Orpington.

H. P. (Crawley) : We do not know to which you refer. There are about eighteen.

J. S. (Petersfield) : If you care to send it to us we shall be pleased to give our opinion.

H. B. (Guelph, Canada) : About November.

L. P. S. R. (Rio de Janeiro, Brazil) : We must refer you to our advertising columns. Several firms are there advertising what you require.

R. T. L. (Aberdeen) : We will bear your remarks in mind. Thank you for your suggestions.

B. C. S. (Wye) : The late Lewis Wright.

A. R. K. (Cley, Norfolk) : We have always found the following mixture very effective : 4 gallons of lime and water, 1 pint of paraffin oil, and $\frac{1}{4}$ lb. of soft soap. The former kills all insects, the latter prevents the whitewash peeling off.

S. M. S. (Ipswich) : 1oz. mercurial ointment, 1oz. lard, $\frac{1}{2}$ oz. powdered flowers of sulphur, and sufficient paraffin oil to make semi-liquid.

R. W. M. (Carlow) : We must refer you to the article, "The Consumption of Eggs and Poultry," on Page 284—288 of the February issue.

P. S. (Woodford) : See reply to T. S. R. (Colchester) above.

NOTES FROM CORRESPONDENTS.

SCOTTISH NOTES.

By A. M. PRAIN, J.P.

IN last month's number Mr. W. W. Broomhead has courageously opened up a question of the very greatest importance to the poultry world. Under existing conditions of judging and exhibiting a stigma is laid on the whole poultry fancy. There can be very few judges who have not felt the indignity of being watched and guarded at agricultural shows till they were safely within the poultry tent, whilst their fellow-judges were free to do as they chose, because no secrecy was attempted regarding the ownership of the stock on which they were to adjudicate. There is surely something childish in our agricultural shows making such a sharp distinction between the poultry and the other livestock sections. It is humiliating to have the reflection cast on poultry exhibitors and judges that they are less honest than the exhibitors and judges of other classes of stock. That this is implied under the present system cannot be doubted. Underhand practices are known to exist in the exhibiting of all classes of stock, and the vital question is how the whole tone of the business is to be raised to a higher level. Personally, I have all along been in favour of open judging.

The silly attempt made by one of the large English shows to baffle connivance between judges and exhibitors by the use of a complicated system of pen numbers omitted to take into consideration the necessity for locking up the judges for two or three months before the show. So long as judges are free to go from show to show before the event comes off at which they are to officiate, it is impossible to prevent them recognising some of the birds which are sure to be before them. If, then, they know some, why not all? It is ridiculous to expect that a judge, who moves about as most judges do, could not recognise some of the exhibits. The expert knowledge necessary to qualify him to act as judge entails the faculty of remembering minute points of difference, and, far more, whole specimens. Admitting, then, that the judge must almost inevitably know some of the exhibits, it would be much fairer if he were in a position to know all if he cared to. To my mind, the very first thing to remove the suspicion which surrounds, to a certain extent, every show is to put a catalogue in the judge's hand before he begins his work, and by so doing put him on his honour. He may use the catalogue or not, just as he pleases; but, should a friend be favoured unduly, he cannot fall back on the excuse that he did not know.

Under no judge or system of judging, however, will it be possible to eliminate the grumbler or mete out absolute justice to every exhibit. Looking back over nearly thirty years of close connection with the poultry world, I am glad to state that I have found more good in it

than bad. It has been impossible to avoid noticing shady things, but, on the whole, I have found that more errors have been made through ignorance than through deliberate favouritism. One has only to think of one's first judging experiences to appreciate how easy it is to make mistakes. How I used to worry over the Game Bantam classes, having practically no knowledge of their special characteristics! Yet how kind some of my old Forfar friends were to my shortcomings, and how painstaking in teaching me their points! Now every judge must meet classes with which he is quite unfamiliar, and therefore incapable of judging, yet he must do his best. Sometimes the very worst bird in the class may get the prize in all seriousness. It belongs to someone he knows, and so this judge is as bad as the rest! Well, I add my whole testimony to the side of open judging.

Every day is increasingly interesting now as the chickens develop. The early ones are away "on their own" from all artificial heat, and beginning to show signs of what they are ultimately to be. How many real champions are spotted just about this time! Enthusiasm depicts the ideal, faultless specimen in the half-grown chick. The faults come afterwards.

During the last week some disastrous hatching results have come to my knowledge. In one instance 650 eggs were set for 100 chickens. In another 400 eggs for 40 chickens. One 100-egg machine only yielded six chickens, and a 60-machine five. What is the cause of such poor results? These are not from novices, but from people with years of experience. The percentage of fertility was about 75 per cent., but a very large number of the chickens died from the seventeenth to the twenty-first day. Many broke the shell, but could come no further. I hear also of chickens dying from various causes in greater numbers than usual. From present accounts it looks as if the early shows will be much below the average in entries. Brighter, warmer weather has now set in, however, so that better things are probably ahead.

NOTES FROM YORKSHIRE.

By F. W. PARTON.

IN spite of the intense cold at the beginning of the year and the boisterous weather of March and April, the present hatching season has been a very successful one in Yorkshire, and more chickens are in evidence than I remember having seen for many years past. Very early hatching, however, has not been as general as usual, although it is gratifying to see that the early chickens are principally the heavier breeds, and those are doing exceedingly well, and already many of them are showing great promise in regard to size of frame and constitution, both so necessary in those

destined to be breeders. Hatching the quickly growing Leghorn type of chickens continues till the end of May, when the season will have finished for the majority of poultry-breeders.

The present year has been remarkable so far as the continued high price for eggs is concerned. The price has been well maintained in most parts of the country, but nowhere has it been more marked than in the West Riding of Yorkshire. The months are now past when eggs are most plentiful, yet the retail price for newly laid eggs has never fallen below a shilling for 12, and the outlook for the economic poultry-keeper, despite the wheat "corner," has seldom been brighter.

The Wharfedale Agricultural Society held their one hundred and eleventh annual show at Otley on May 7 and 8. Beautiful weather added greatly to the success of the undertaking. Otley is pleasantly situated on the Wharfe and in a valley at the foot of the lofty Chevin range, and being within easy reach of Leeds and Bradford, large crowds, as might be expected, visited this beautiful district. The entries were numerically good and the exhibits of distinctly high class. Many birds of exceptional quality made their début, and it will be interesting to watch their career during the ensuing show season. The White Wyandotte classes were very heavy indeed, and the task of judging was an arduous one, even in the capable hands of Mr. C. N. Goode. Amongst the principal winners were Mr. O. F. Bates, Mr. C. Preston, Mr. R. Anthony, Mr. H. Bonny, Mr. H. Porritt, Miss H. A. R. Brown (Shadwell), Mr. J. Brennand, Mr. C. E. Pickles, Mr. W. Firth, and Messrs. W. and J. H. Heys.

WELSH NOTES.

By A. T. JOHNSON.

THE most important event of the past month has been the resurrection of the North Wales branch of the Poultry Club, which had become practically defunct. A postal ballot was arranged for electing the committee, with the result that the following were elected of those willing to serve: Miss Babcock (Old Colwyn) and Miss Howard (St. Asaph), Colonel Sandbach (Abergele), Rev. O. Ryffin Williams (Anglesey), Messrs. W. H. Davies (Pwllheli), H. Eastwood (Conway), A. T. Johnson (Talycafw), J. M. Griffiths (Rhyl), H. Simkin (Colwyn Bay), N. J. Campbell (Holyhead), J. Greene (Ruthin), W. H. Bourne (Colwyn Bay), R. Edwards (Llanrwst), and E. J. Jones (Chwilog). Colonel Sandbach was unanimously elected chairman and delegate and myself hon. sec. It is pleasant to be able to record the fact that a large number of new members have been lately enrolled, and that, if we can procure half a dozen more, we shall be qualified for a "county cup." It is sincerely hoped that all fanciers in North Wales will assist in the achievement of that object by joining the branch at once. A £5 5s. cup (for their very own), decorated with the red dragon and the leek, should surely inspire all patriotic Welshmen with a desire to obtain such a trophy.

Whatever check the young chickens may have

sustained in April, owing to the cold winds and lack of sunshine of that month, the first week or so of May was beautiful weather, in which they seemed to make up for any lost time. Although backward, on the whole the chickens are very strong in number and in quality. There is a steady and very marked improvement in the stock kept by farmers, the White Wyandotte being nearly as popular now as the ubiquitous Buff Orpington. There are still no very perceptible signs of any increase in turkey culture, which is a great pity, seeing, as I have often observed before, that the market in Wales is good and the country an ideal one for the purpose. Goslings are both scarce and late.

Complaints are heard on all sides of the general depression of trade, which has necessitated many a working-man fancier giving up his hobby. In the great quarrying centres there used to be a flourishing body of fanciers, but now it is difficult to find a single individual with any stock worth showing, and one after another—viz., Llanberis, Penygroes, Gaerwen, and many other shows in the "slate" districts, as well as in agricultural centres—have had to "go under."

IRISH NOTES.

By MISS MURPHY.

ONE of the most interesting articles on poultry that I have read for some time appears in the current issue of the *Journal of the Department of Agriculture for Ireland*. For some time a number of poultry-keepers have been keeping records of the eggs laid by their birds, and the figures for a year (January, 1908—January, 1909) are now published in complete form. The most striking fact brought out by the tables given is the great variation in laying powers shown by the non-sitting or purely laying breeds, many of them falling far below the "general purpose" in this respect. For instance, taking that much-discussed breed, the White Leghorn, we find the first pen making an average of 171·6 eggs per annum and the lowest 69·8. We have no data as to the pedigree of these, but it would be interesting to discover whether the leading pens are of English or American extraction.

Opinions differ as to the best way of conducting a laying competition, but I must confess to a preference for my own way—viz., the record of flocks kept under ordinary farm conditions of weather and food and care. In the records being kept for 1909, the number of hens as against pullets, and also the kind and cost of food, are stated, so that, valuable as is the information now given, that to come promises to be of still greater value.

In passing, I may remark that the money spent on education in poultry matters, although of so small an amount compared with that expended on other branches, has returned an enormous sum to the country. In 1905 our export of eggs was placed at £2,555,080, while in 1909 this had risen to a sum of £2,920,539; and the improvement in packing and marketing is very well marked. The export of poultry produce (including eggs,

birds, and feathers) is equal to that of butter, and the value of the money received helps many a house in food and even in clothing. In the May issue of the ILLUSTRATED POULTRY RECORD Mr. Prain gives a hopeful view of the industry in Scotland. If the work of the instructors there leads to the satisfactory results that have followed in Ireland, the Scottish Poultry Commission will have done a great work.

The hatching season is now over, and I hear fairly satisfactory accounts, notwithstanding the severity of

the spring weather. Many letters reach me from time to time with reference to incubators, and it is remarkable that most of the difficulties are with hot-air machines. Whether it is that tank machines suit our climate better, or that it takes a more skilled operator to work the newer type of machine, I have not sufficient information to say, but the fact remains that, so far as my experience goes, the British type of machine is best in the hands of the novice. The skilled operator can do well with any machine of standard make.

SELECTIONS FROM OUR CONTEMPORARIES.

Give the Chicks a Chance.

Probably nine-tenths of all persons hatching chicks at this season of the year hatch primarily for stock purposes—that is, for birds of which the best are to be used for laying and breeding. Mature fowls may, so far as their individual lives are concerned, do very well under what we call adverse conditions, crowded quarters, small bare yards, &c. But young chickens can be successfully grown under such conditions only if given unusual care—far better care than most people are in position to give them.

It is not putting too much stress on that one point to say that the first need of the growing chick is—room; and the next—more room; and more and more room. Young chicks crowded in small runs or coops (we have seen fifty to seventy-five in coops, giving them only about twenty-five square feet of ground) may live, and the owner may think they thrive, but it is not often that such chicks look thrifty when brought into direct comparison with really vigorous chicks grown under better conditions.

There are two ways of giving chicks room. One is by shifting coops frequently to new ground while the chicks are small, and giving good range when they are large enough to roam with safety. This way is open only to the poultry-keeper with plenty of land. The other way is by strictly limiting the number of young chickens grown. It is in every way better and more satisfactory to raise a dozen good ones on your little plot than to grow three or four dozen poor ones on the same area.—*Farm Poultry, U.S.A.*

Why the Eggs Did Not Hatch.

Those who sell eggs for hatching purposes occasionally have to exercise some patience, and there are undoubtedly times when purchasers might, by using a little forethought, avoid giving offence to fanciers who, in nearly all instances, desire to deal fairly. We recently heard of a case where a lady, having bought a dozen eggs, set them under a hen, and obtained only two chickens. Her first action was to write an indignant letter to the vendor, though it eventually transpired that the eggs had been set beneath a leaky roof, that the hen had once been off them for seven hours, and that upon

examination only two were infertile. Many similar cases could be related; and although frequently enough the seller must be called to account for sending out infertile eggs, a little trouble should be expended in order to make sure whether the fault really lies with the vendor or with the method of incubation employed. All egg-sellers are naturally ready to replace infertiles, but it is a trifle unjust to lay to their door the blame for accidents over which they have no control.—*Poultry.*

Poultry-House Floors.

The most suitable floor for a poultry-house is composed of the ground itself, and whenever possible such should be employed in preference to any other material. If the field is at all damp or low-lying the interior of the house should be dug out a few inches and refilled with gravel or broken bricks, and then covered with earth, raising it three or four inches above the level of the surrounding ground. This ensures absolute dryness. If well beaten down a hard surface is obtained, upon which the litter may be placed. Wood is often used, and when it is impossible to use the ground itself it is the best material one can have. Cement is too cold, and bricks, being absorbent, retain some of the liquid part of the dung, preventing such a house smelling perfectly pure. Many forms of poultry-houses are built with a raised floor, but there are certain disadvantages to this. True, it affords the birds protection from the wind and rain, forming a kind of scratching-shed, but, on the other hand, it makes the interior of the house much colder. Heat and cold are atmospheric, and thus the nearer the ground the more even the temperature. It stands to reason that a bank of cold air beneath a house is bound to reduce the temperature within very considerably.—*Farm and Home.*

Wild Turkeys in Scotland.

Within the last few years an addition has been made to the *Avifauna* of Dalmeny woods by the introduction of a brood of wild turkeys. These birds are natives of Australia, but they have been naturalised in several estates in England, and have now taken kindly to their Scottish quarters. They seldom move far from their coverts except in the spring of the year, just before the nesting season, when they begin to get restless, and

manifest a wandering disposition. Recently a small flock crossed the Almond to the Cramond side of the river, and took up their quarters near Inveralmond, where their presence attracted considerable attention. Their whereabouts coming to be known, they were by judicious herding induced to take their flight back to Dalmeny. Their nest consists simply of a hole scraped in the ground. If the present breeding season is favourable these interesting birds should soon be found in different parts of the Lothians.—*Scotsman*.

The Adult Stock.

Hens that have done their duty during the winter months are now probably feeling somewhat exhausted,

some arable land. Not only are the birds healthier under such conditions, but they cost practically nothing to maintain, as they are able to obtain so much natural food for themselves—the best kind they can have.—*Agricultural Economist*.

First Crosses.

For egg-production, as well as for table birds, the first cross has been found suitable. A good cross, producing a good hardy bird, is secured by using white Brahma hens and Plymouth Rock cockerels. This is the recommendation of a farmer who has recently killed birds of this cross weighing $5\frac{1}{2}$ lb. at four months old. A cross that produces excellent layers is also secured



ROUGH-AND-READY POULTRY-KEEPING.

[Copyright.]

and they require careful treatment during the next few weeks. So often it happens that as soon as a hen ceases to lay, even though she has been producing a large supply of eggs for months past, she is at once neglected and made to look after herself to a large extent. This is a very mistaken policy, for it means that next autumn and winter, when eggs are scarce and hence valuable, she will be producing a much smaller supply than if she had been carefully tended during the late spring and summer. Whenever possible laying stock should be given their liberty during the spring months, being housed in a portable shed placed in a meadow or near

by using Plymouth Rock hens and Brown Leghorn cockerels. The pullets from this cross will be black, they will be good laying birds, quick growers, and hardy—a good all-round fowl.—*Agricultural Gazette*.

Petits Poussins.

A considerable demand exists among the wealthy classes during April, May, and June for what are termed petits poussins, but, unfortunately, up to the present poulters have had to rely almost entirely upon foreign birds, being unable to obtain sufficient supplies at home. Probably 95 per cent. of the birds disposed of on the

London and other first-class English markets are imported from abroad, the chief sources of supply being France, and to a lesser degree Denmark and Belgium. Yet the trade is an extremely profitable one, and provided the conditions are favourable it involves no particular difficulties. Petits poussins are small chickens, weighing from 6oz. to 8oz. each, and they closely resemble the "broiler" of America, save that in the latter case the birds are rather heavier, rarely weighing less than 12oz.—*Bazaar, Exchange, and Mart.*

Advance, Scotland!

In regard to the "strong condemnation of Scotland's neglect of the egg and poultry industry" which is passed by the report of a Government Committee, we have received the following spirited lines :

Sons of Scotia, rally round !
 Something's rotten in the State,
 And your history, once renowned,
 Wants—well, bringing up to date ;
 Summon Caledonia's clansmen,
 With the pipers, blatant bandsmen,
 This disgrace you must dispel.
 Nip it in the bud, ab ovo
 (Latin : baldly, "from the shell").
 Think upon your nation's tale !
 Think upon your stoic past
 And emit a Celtic wail,
 For it's slipping from you fast !
 High falutin' re the claymore
 Will not make your poultry lay more.
 Will you watch the tourist folk,
 Nauseated, fleeing from you,
 Scornful of an absent yoke ?

—*Globe.*

The Hatching Season in Aberdeenshire.

There are few poultry-keepers who can call to mind a more disheartening hatching season than the one now dragging its weary length. The month of March came in, as it has been wont, after the manner of the ill-natured lion. Contrary to its wont, however, the lion did not give place to the characteristic lamb. The month has passed into history unwept, and with few to desire its like again. March chickens, so important in view of next winter's egg supplies, are few, and two causes have contributed to their fewness. These are the scarcity of broody hens and the too general failure of hatching operations. It is an ill-wind that does not blow good to someone, and the untoward season has forced upon many poultry-keepers the desirability of procuring the requisites for artificial hatching and rearing chickens.—*Aberdeen Evening Gazette.*

Foreign Game Birds.

At the present time the poulters' shops will be seen to abound in pheasants from Austria and Hungary, in partridges from Russia and Scandinavia, in quails from Italy, and in hares from the shores of the Baltic. Now and again Lord Beaconsfield's favourite ortolans may be

seen, but they are exceptional. What one has to consider is that in all these cases we have a thing which is neither fair nor free trade, but a peculiarly ill-omened and unnatural thing, a species of Protection à rebours. These pheasants, partridges, hares, &c., are all selling to human beings who will use them to satisfy their daily appetite, and will buy less English produce to precisely the extent of the foreign produce which has replaced it. And how has the foreigner obtained his market ? Not by any superior merit or business aplomb, but by the laws of England prohibiting the ratepaying tradesman from selling what the non-ratepayer oversea may ship to our shores and there sell. English game may not be sold in the close season. Are unrestricted imports from countries that have no Game Laws fair play to Englishmen ? The matter is one that seems to call for attention, as the flooding of our spring markets with foreign game has greatly and noticeably increased during the last three seasons.—*Standard.*

A Poultry-Keeper's Balance-Sheet.

The owner of an estate in the Eastern Counties has a very warm and sheltered park of about eighty acres, all light, dry soil, on which pheasants are easily reared. Some years ago this gentleman decided to experiment with poultry, and arranged with one of his lodgekeepers and his wife, an exceptionally intelligent and able couple, to manage the fowls, which are all White Leghorns, and are kept for the production of eggs. Sufficient pullets are hatched each year to take the place of hens that are weeded out. The surplus cockerels are sold when quite young. The fowls range at will over the park. We are indebted to the poultryman for the following particulars :

DETAILS OF FIVE YEARS' POULTRY-FARMING.

	Average of Five Yrs.
Number of hens and pullets kept.....	136
Number of eggs laid per hen per year	72
Net price of eggs all the year round..	10d. a doz.
Net price of fowls sold.....	1s. 10½d. each
Wages and commission	£4 16s. 5d.
Food	£38 6s. od.
New stock and sundries	£2 9s. 1d.
Average profit	£4 16s. 5d.

No rent is charged for the run of the park ; nothing is credited to the fowls for manure. The first year, when only some sixteen hens were kept, they averaged about 120 eggs per hen.—*Country Life.*

The Young Stock.

Young chicks, about the time they begin to feather, often become dull and drooping, and the first thing that is usually suspected is lice. It is always a good thing under such circumstances to look for lice, for very often this is what is the matter, but sometimes the poultry-keeper looks for lice to account for the drooping, and does not find them, and then he is puzzled. We are satisfied that the trouble is very often due to the drain caused by rapid feathering. Those who have watched moulting hens carefully have seen them frequently affected in the same way and from the same cause—namely, the strain of the system due to feather-making

which is itself an exhaustive process unless it progresses slowly, and on food suited to it. When chickens become dumpish under circumstances that lead one to suspect that this is the cause, they should be treated very much as hens that have trouble in moulting are treated. They should be fed liberally, if the run is limited, on such food as oats, meat scraps, bonemeal, &c. What they want is nitrogenous feeding, for making feathers demands this kind of material. They should also have a little tonic treatment, such as is afforded by putting a little sulphate of iron in the drinking water. They should likewise be kept warm, dry, and comfortable, and have sunlight every day that the sun shines. Of course, where the run is large and plenty of worms, grasshoppers, and insects of various kinds can be found by foraging for them, the meat scrap feeding is not necessary, but in this case the trouble of which we speak is not likely to occur. It generally takes place where the chicks are confined to quarters somewhat limited.—*Farm Life.*

How to Pack Eggs.

The prize offered by the Kansas State Poultry Association for the best packed package of eggs for shipping was won by N. P. Todd, Rhinehart, Mo. Mr. Todd has written us as follows about his method of packing eggs :

"The necessary articles are a basket, excelsior, and egg-box with fillers, and some sheet cotton. Cut your cotton sheets, making them about six inches square. Take your egg and place about the centre of one edge of cotton, roll in cotton, then fold the ends down on opposite sides. Then place in filler, little end down, so on until you have your setting in box. Then place top on and tie with good small cord. Here one of the important parts comes—to ensure your eggs from being changed while on route. Take a picture of some of your birds or some of your note heads and glue over knot in cord, I use photo of one of my birds, thus you have them sealed, for they can't be opened without destroying the seal, and the would-be robber hasn't the necessary seal to replace. Then take your basket, I use the peck size ordinary split basket, all grocers handle them, but you can get them cheaper by ordering, about 35 cents a dozen. Put in excelsior so that when the box is placed in it has a good shield from jars or any outside knock. Place box in, see that there is excelsior on the sides and ends and about three-fourths inch on top. Then make a thin wooden top to fit top of basket, tie on tight and you have completed your part of contract in first-class order."—*Poultry Culture, U.S.A.*

TRADE NOTICES.

Messrs. A. Thorpe and Sons.

In our issue of December last we published an illustrated account of the up-to-date mill and factory at Rye, in Sussex, where the poultry foods made by this well-

known firm are produced. We have just received a copy of the eighth edition of Messrs. Thorpe's price list, a grey-covered booklet which shows that in this detail of business, as in others, the firm is fully abreast of the times. It is excellently printed and illustrated on art paper, and gives all the necessary information concerning the various specialities with which the Rye Mills are connected. A great part of Messrs. Thorpe's trade is, of course, in Sussex Ground Oats. Besides this, they produce a special fattening meal, and among their numerous foods for fowls, chicks, ducks, and turkeys are such notable specialities as the Lactum and Oatum Chicken Meals and the still better known "Cock o' the Walk" Poultry Meal. These preparations are the outcome of a long experience in this line, and of methods for the excellence of which we can personally vouch. We are pleased to learn that Messrs. Thorpe have recently dispatched to Paris a large consignment of their foods, including Sussex Dry Chick Foods of the best quality, as a trial order.

Mr. W. Tamlin's Exports.

The following is a list of Mr. W. Tamlin's exports for the month of April, 1909 : Ten 60 incubators, ten 100 foster-mothers, to M. Andre Masson, France, per Bennett Steamship Co.; fifteen 60 incubators, twenty 100 incubators, to Messrs. Woodhead, Plant, and Co., South Africa, per ss. Walmer Castle; two 200 incubators, to M. J. Delchevalerie, Belgium; one 60 incubator, one 60 foster-mother, to Mr. H. P. Enke, Belgium; ten 60 incubators, ten 100 incubators, ten 100 Sunbeam foster-mothers, to A. Newcomb and Co., New Zealand, per ss. Tainui; one 60 incubator, two 60 Sunbeam foster-mothers, to Captain Day, Burmah, India, per ss. Warwickshire; twelve 60 incubators, to Messrs. Oakes and Co., India, per ss. Martiana; one 60 incubator, to Mr. L. van Regenorter, Brussels; two 60 incubators, one 60 foster-mother, to Mrs. T. Hockley, Bombay, per ss. Caledonia; one 100 incubator, to Mrs. T. Hardy, Launceston, Tasmania, per ss. Ionic.

The L. & S.W.R.'s Guide.

The London and South-Western Railway Company's Official Illustrated Guide and List has just made its annual appearance. Edited by Mr. W. T. Perkins, the book, carefully revised for the year, contains much interesting information relating to the numerous inland and coast holiday resorts which are reached by the train and steamship services of the London and South-Western Railway. Many new illustrations have been introduced, and there is a list of golf clubs brought up to date, together with a large map specially prepared for the publication. Copies of the guide are being sent gratuitously by officers of the company, under the direction of Mr. Henry Holmes, superintendent of the line, to all parts of the United Kingdom, as also to applicants in many foreign countries.